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# Telecommunications

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# TELECOMMUNICATIONS

## CONTENTS

SWEDEN

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MEETING ON TELECOMMUNICATIONS PROGRESS

Bamako L'ESSOR in French 18 May 87 p 4

[Article by A. Niakate:    "Waiting for the Reorganization of Telecommunications"]

[Text] Mrs Gakou Fatou Niang, chairperson of the management committee of the Tele-Mali Company, directed the work of the 21st meeting of that company on 12, 13, and 14 May with emphasis on both openness and strictness in management.  The meeting took place in the lecture hall of the TIM in the presence of Mr Michel Hachamanian, deputy general manager of FCR (France-Cables and Radio), the French partner of Tele-Mali.

Half a score of items were on the agenda.  Among other things, the board members looked into the way the various tasks were being checked on, the financial report, the 1986 social account estimates, the 1987 financial estimates, and the draft of the special charter for Tele-Mali.

Earlier, in opening the meeting, Mrs Gakou expressed her pleasure in receiving the representative of FCR at Bama after noting that this meeting was particularly important.  Tele-Mali, she remarked, faithful to its vocation of promoting new techniques, can point to some very nice achievements.  These include the installation of a Hertzian TV link between Sulleymambougou and the studios of RTM, the change of the TV demodulator, the increase in the number of international circuits, the procurement of new TX-20 teleprinters, and the installation of a telecommunications center equipped with four automatic telephone booths.

Mr Hachamanian also emphasized the important nature of this meeting which takes place at a moment when telecommunications in Mali are undergoing profound reorganization.  The Malian government can in the future count on the cooperation of France-Cables Radio which will make all desired technical resources available to it, the speaker concluded.

The voluminous file presented by Mr Minemba Mamadou Keita, the company manager, was then reviewed by the French and Malian board members.  The discussions over the next 3 days essentially dealt with the company's financial, technical, and administration situation.

The meeting approved fundamental conclusions. Among these we must note openness. On that score, the documents describing the accounting situation between the OPT [Postal and Telecommunications Office] and TIM will continue to be the subject of coordination and prior agreements between the two organizations before their being taken over. The need for constantly keeping the accounting documents up to date was considered necessary to guarantee the credibility of the accounts.

Because of the treasury difficulties encountered in connection with abiding by the debt payment commitments of the OPT toward TIM and the French PTT [Postal Telegraph and Telephone] administration, the committee reviewed the solutions that were judged reasonable and that must now be complied with. The other decision pertained to the reduction of missions and the volume of financial obligations which they could entail.

The 21st meeting also drew up a list of statutory missions limited to only those meetings which are indispensable for the interests of the company with the possibility of using the skills of all of the available technical cadres. The meeting then decided that, from here on in (that is to say, starting with FY1987), the company would submit budget estimates with the operating and equipment components.

In her closing address, Mrs Gakou Fatou Niang recognized and praised the correctness of these measures; she said that the important thing is to impart new dynamics to Tele-Mali upon the approach of the future reorganization of telecommunications in Mali.

According to the minister of information and of telecommunications, this 21st meeting is a step forward in the battle which Mali is fighting to obtain for itself those reliable means of communication which will be up to the new technologies of this decade. There is no doubt that the decisions adopted jointly by the Malians and the French in the course of their work will provide new impetus for the management of Tele-Mali.

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CSO: 5500/10

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RADARSAT REMOTE SENSING SATELLITE PROJECT APPROVED

Toronto THE GLOBE AND MAIL in English 26 Jun 87 pp B1, B2

[Article by Lawrence Surtees]

[Text] Detecting violations of Arctic waters will now be easier following the federal Government's approval of a $725-million remote sensing satellite project.

The new satellite, dubbed Radarsat, is scheduled to be launched from the United States in 1994 and will have a five-year life span.

Radarsat's sensors will provide information on agricultural crops, forests, mineral resources, Arctic ice, weather and coastal waters to government and commercial users for a fee, federal Science and Technology Minister Frank Oberle announced in Toronto.

The satellite is expected to cost Ottawa $279-million to build and $50-million to operate because of offsetting contributions from two international partners, the provincial governments and sales of data to users. "It's all new money, too," Mr. Oberle said.

Unlike communications satellites that are placed in stationary orbit 32,-000 kilometres above the Equator to relay messages, Radarsat will pass over the North Pole at a height of 800 kilometres to relay photographic-like images of the Earth's surface to tracking centres.

But Radarsat also differs markedly from other remote sensing satellites, which use optical or infra-red sensors to produce images. Radarsat will take its pictures with radar waves — high frequency radio waves that bounce off the Earth' surface and are received by the satellite's receiving antenna.

Because it uses radar, Radarsat will be able to penetrate clouds and operate in the dark. And its polar orbit will allow it to map the entire globe.

"This is a unique Canadian technology," Mr. Oberle said, referring to the synthetic aperture radar (SAR) that is the heart of Radarsat's sensors.

The radar device, worked on jointly for the past eight years by researchers at the Department of Energy, Mines and Resources and Intera Technologies Ltd. of Ottawa, gives Canada an edge over similar sensing satellites currently under development in Europe and Japan.

In order to gain access to Radarsat data and technology, both the United States and Britain will contribute services and systems to Radarsat worth more than $310-million of the total cost.

Unlike competing versions, Radarsat's SAR sensors have multiple beams that are adjustable and provide variable resolution of objects on the ground, from 100 metres to 10 metres. Radarsat also has a longer lifespan.

Because of its technical parameters, Mr. Oberle stressed that Radarsat is not a spy satellite. But he didn't rule out the possibility that data it collected on ships in Arctic waters would be passed on to the military.

"Radarsat will enhance our claim to Arctic sovereignty by providing daily surveillance of the Arctic islands and waters," a Government briefing paper states. The satellite's radar beam cannot penetrate through ice or water, however, and could only detect intruding submarines that have surfaced. (Recent intrusions of Arctic waters by U.S. and Soviet submarines have made Arctic sovereignty a political issue.)

Federal Government officials told reporters at a briefing that Radarsat will also collect data on the Soviet Union during each orbit. The data will be stored on computer tape during each pass and then relayed to ground terminals at Gatineau, Que., and Prince Albert, Sask.

But Mr. Oberle said all data from the satellite can be purchased by any

NORTHERN TELECOM ENHANCES DMS-100 TELEPHONE SWITCH

Toronto THE GLOBE AND MAIL in English 8 Jul 87 p B10

[Article by Lawrence Surtees]

[Text]

Northern Telecom Ltd. of Mississauga has developed new software and computer processors for its DMS-100 switch that is used by telephone companies to route subscriber calls.

The enhancements will make it easier for telephone companies to combine separate network functions at a single location and to offer new services to subscribers.

The DMS supernode uses a Motorola 32-bit microprocessor memory chip to control its functions, making it one of the first telecommunication products to use the latest generation of high-speed computer chips.

The 32-bit chip can process twice as much information as existing 16-bit chips that are the brains of many computerized devices. The new chip will give the DMS processors twice the power of current processors used in the switches.

The greater speed will let telephone companies increase the capacity of a switch more than five-fold, said Roy Leahy, director of digital switch marketing at Northern Telecom Canada Ltd.

Each switch contains main memory processors that contain the software instructions, or operating system to run the switch. Other processors are added that contain the computer program codes for special functions.

The supernode also contains a new device to tie the various processors together and exchange data between them at faster speeds.

A third device provides similar software for exchanging information between switches at different locations.

The new features will help telephone companies design and manage their networks as they see fit, said A. A. MacDonald, vice-president of DMS-100 products at Northern Telecom Canada. For subscribers, it means telephone companies will be able to offer new services more economically and that large business users will be better able to design tailor-made networks.

For example, many computerized telephone services require enhancements to every switch used by a telephone company. That is why some services are not available in less populated areas. However, the enhancements will let the telephone company place the necessary software at a single location that can be accessed by each switch through the link software.

The enhancements will also make it easier for telephone companies to offer residential subscribers new services, such as incoming call number identification. Bell Canada has been experimenting with a variety of these services in a market trial in Peterborough, Ont., and plans to begin offering services that use a new signalling technology next year.

Telephone companies will increasingly require more computing power in their switches because of a new international standard that is aimed at combining voice, data and image communications. Dubbed ISDN, for Integrated Services Digital Network, the standard will attempt to eliminate the welter of incompatible telecommunication networks and replace them with a single, common global network for every form of electronic communication.

Northern Telecom also hopes that its enhancements will give it a further lead over its North American and European competitors.

Because supernode is an enhancement, it is targeted at Northern Telecom's installed base of 1,500 DMS-100 switches. The potential impact of the enhancement on Northern Telecom's 1987 and 1988 revenue is difficult to forecast because the cost depends on the size of each switch that is being modified.

However, news of the announcement drove the share price of Northern Telecom's stock up $2 yesterday on the Toronto Stock Exchange with shares closing at $30.12. The stock was the third most actively traded issue on the TSE with more than 831,000 shares trading hands.

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CSO: 5520/37

BELL-NORTHERN DEVELOPMENT OF 'PHOTONIC BUS' REPORTED

Toronto THE GLOBE AND MAIL in English 9 Jun 87 p B15

[Text]

Congested telephone lines and garbled and distorted sounds over the system should be eliminated to a large degree when the major telephone companies replace the metallic conductors on their switching systems with light-powered ones — possibly in the next decade.

Bell-Northern Research Ltd. of Ottawa is working on the system now, its Photonic Network Technology manager, D. A. Kahn, told a research forum in Ottawa.

The research is still experimental, but eventually the replacement of metal with plastic strands, illuminated with light shone through lenses, lasers, or a light-emitting diode, or vacuum tube, should enable telephone lines to carry not only far more data, but also new types of transmission, such as pictures, Mr. Kahn said.

Unlike wires, light beams, when they cross, do not distort. The trick in designing photonic, or light-based switching interconnections has been to preserve the design of present interconnections, using the new power source.

Bell-Northern's research group has developed what it calls a "photonic bus" that appears to do the job. The replacement of electrical switching system "backplanes" with photonic ones should save both power and space, as thousands more broadband transmission channels are added to the system, Mr. Kahn said.

In the computer field, where Digital Equipment of Canada Ltd. is already using fibre optics for some computer terminal interconnections, the move to complete photonic rather than electrical connections, expected in the 1990s, will enable computers to operate at the speed of light.

Their power will be increased about 100-fold, Mr. Kahn said.

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BRIEFS

DIGITAL EQUIPMENT AGREEMENT WITH TURKEY--Northern Telecom Ltd of Mississauga has signed a $360-million agreement with the Turkish Post Telegraph and Telephone Administration covering deliveries of digital telecommunications equipment over three to five years. The company said the deal will support the local manufacturing of its DMS digital central exchange switching system by Netas, a Turkish joint venture in which Northern Telecom has a 31 percent interest. [Text] [Toronto THE GLOBE AND MAIL in English 2 Jul 87 p B4] /9274

QUEBEC CITY-WINDSOR CELLULAR LINKUP--The longest unbroken cellular radio-telephone system in the world is fully operational, two weeks ahead of schedule. It links Quebec City to Windsor along Highway 401 and Highway 16 south from Ottawa to the 401. The service, offered by Montreal-based Cantel Inc., is available to more than 30,000 Cantel subscribers. Previously, there were gaps in the Cantel service along the 401 and drivers on Highway 16 lost their service at Kemptville until they approached Montreal or travelled west of Kingston. Along the route, radio towers, or cell sites, spaced 25 miles apart. connect signals from cellular car phones to the public telephone system. To maintain a signal for someone travelling between cities requires a series of sites along the route which hand the signal from one to the next. In order to improve its service, Cantel built an additional 15 radio towers along the route adding to the 70 already in use, according to a Cantel spokesman. [Text] [Ottawa THE OTTAWA CITIZEN in English 7 Jul 87 p B5] /9274

CSO: 5520/37

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RAPID DEVELOPMENT OF UNDERSEA FIBER-OPTIC CABLES URGED

[Article by Wu Yuansheng [0702 0337 3932], Institute No 23, Ministry of the
Electronics Industry:  "Accelerating China's Development of Undersea Fiber-
Optic Cables"]

[Text]  I.  Overview

The first transatlantic telephone cable was completed in 1956, about a century
after the world's first undersea telegraph cable was laid across the English
Channel in 1851.  Undersea communications technology has developed rapidly
since then:  as of 1980 a total of about 250,000 km of undersea coaxial cable
had been laid worldwide, an amount sufficient to circle the Equator six times.
This cable linked about 50 countries, contained about 90 million telephone
circuits, and involved a total investment of nearly US $3 billion.

Since the 1940's the advanced countries have developed more than 20 undersea
cable systems of various types, such as the United States SB, SD, SF and SG
systems.  The call capacity has increased from 48 circuits to 4200 (Table 1).
In 1979 Japan developed the CS140M system, in which it tested a cable 43.18 mm
in diameter with a transmission capacity of 10,800 circuits that was
compatible with coaxial land lines of the same capacity.  Although numerous
undersea metallic cables have been laid since 1980, no new designs have
appeared.  The development of the SH system, with a capacity of 16,000
telephone circuits, was planned by the United States, but the project was not
carried out because the cable was too bulky and the repeater distance was too
short (only 4.3 km), greatly increasing the number of repeaters required and
making the system more costly and less reliable.  The SG system, completed in
1983, is already nearing the limits of its capacity;  thus the emergence of
fiber-optic communications as a competing alternative in the 1970's made it
clear that in the future optical cables would replace conventional undersea
cables.

China's coastline is fully 18,000 km long and is sprinkled with numerous

islands. Undersea cables are the chief means of communications between islands and from the islands to the mainland. The low construction cost of undersea cables also makes them a good substitute for land communication lines between coastal cities. Since the early 1960's China has developed five undersea trunk cables, two of them balanced cables and the other three coaxial. The maximum cable capacity is 120 circuits, and the maximum cable diameter is 25.4 mm, equivalent to that of the SD system. To date China has laid a total of about 18,000 km of submarine cable. Some of this cable has already been replaced, and the rest will gradually be replaced as well. We therefore should demonstrate that replacement lines and new lines should be converted from metallic cables to optical cables.

Light communications has a very long history, extending from the use of beacon fires to modern optical-beam waveguide concepts, but since light propagates in a straight line and is greatly affected by the atmosphere and by weather conditions, light communications had never come into wide use.

Following the appearance of low-attenuation quartz optical fibers and semiconductor lasers, an entirely new type of system, the optical fiber communications system, appeared in 1980 and very rapidly became commercially available throughout the world.

Starting in the mid-1970's, the United States, Japan, the United Kingdom and France made use of this epoch-making technology in undersea optical cable research. It was especially the appearance of single-mode optical fibers with losses of 0.5 dB/km at 1.3 microns and 0.2 dB/km at 1.55 microns, together with successful experiments in high-speed transmission, that fully confirmed undersea optical cables as the technology of the future. In fact, other than a very small number of projects that were already under way, all long-distance undersea cable projects in the 1980's will use fiber-optic cables. Optical systems 6,000 and 10,000 km long that span the Atlantic and Pacific Oceans are currently being built, with completion expected in 1988. Knowledgeable sources estimate that investments on long-range undersea fiber-optic communications in the next few years will exceed US $5 billion.

In the 1980's China began research on fiber-optic cable design, manufacturing processes, sealing technology, key materials, and sealed connectors. The development of a multimode long-wave 8-core undersea cable specimen 2 km long with an attenuation of less than 1 dB/km at 1.3 microns and a bandwidth-distance product in excess of 600 mHz-km, capable of withstanding a tensile force of 15 tons, was completed in 1984, and cable laying and recovery tests were performed with it in the East China Sea. Research is now continuing.

II. Advantages of Undersea Fiber-Optic Communications Systems

To demonstrate the great superiority of undersea fiber-optic cables to coaxial cables, we shall compare the SL six-core undersea fiber-optic cable used in the eighth transatlantic cable (TAT-8) with the model SG coaxial cable used in the seventh transatlantic cable (TAT-7).

## A. Greater Signal Capacity

The SG system has a capacity of 4,200 telephone circuits, while the SL system has a capacity of 12,000, about 3 times as great. If digital voice compression were used in the SL system, the capacity would be increased to 35,000 two-way telephone circuits, about 9 times that of the SG system.

## B. Longer Repeater Spacing

Because fiber-optic cables have rather low attenuation, the SL system's repeater spacing (50-60 km) is 5 to 6 times that of the SG system (9.5 km), as shown in Fig. 1. The number of repeaters used is correspondingly decreased by a factor of 5 to 6, thus decreasing system costs and increasing reliability. The eminent American-born Chinese scientist Dr Gao Kun [7559 6924] predicts that if the attenuation of superlong-wave optical fibers were reduced to 0.01-0.001 dB/km, transatlantic undersea fiber-optic cable circuits without repeaters would become possible.

## C. Decreased Size and Weight

The SG cable has an outer diameter of 43.2 mm, while the SL fiber-optic cable's diameter is 21 mm, only half as great (see Fig. 2); thus the volume of the SL cable is only one-fourth that of the SG cable. The weight ratio of the SG and SL undersea cables is 1.24:1. As a result, the ships that lay the SL cable can carry a great deal more of it, which decreases transport costs and makes laying and recovery easier.

## D. Suitability for Digital Operation

Digitization is the wave of the future in line communications. Because of limitations on the conductivity of copper, the high-frequency component of digital signals is seriously attenuated in coaxial cables, causing pulse distortion and decreasing the bit rate. The pulse distortion in such cables is proportional to the square of the cable length, while in optical fibers it is proportional to the first power of the cable length, making undersea fiber-optic cables highly suitable for digitization and facilitating their connection to land-based digital systems.

## E. Security

Undersea electrical cables leak an electromagnetic field, making them vulnerable to eavesdropping. But undersea fiber-optic cables are unaffected by external electromagnetic fields and themselves produce no external radiation, so that eavesdropping is impossible and they afford good security.

## F. Economy

Overall, expenses for the SL system are from 37 to 52 percent less than those

for the SG system.  In addition, as the technology matures and commercial production begins, the cost of optical fibers will drop steadily.

III.  Structure of Undersea Fiber-Optic Cables

In addition to having superior optical characteristics, undersea fiber-optic cables must also have good physical and chemical characteristics.  This is because they are laid in the complex marine environment, especially in shallow-water and inshore areas, where they will be affected by bottom geology, mud, marine currents, marine microorganisms, fouling organisms and the like, and will be subject to attack by numerous external factors such as ship anchors, fishing tackle and the like.  During laying and recovery the cables must withstand various external loads, and on the sea bottom they must withstand great water pressure.  In addition they must be designed for remote power supply to the repeaters, as well as for remote monitoring and testing.  They must be resistant to deformation by external forces.  They must be able to resist water pressure, both axially and longitudinally, and maintain their tightness.  They must be suited to the sea-bottom environment, have long-term corrosion resistance, and sufficiently durable.

All of the above requirements must be taken into account when designing undersea fiber-optic cables.

Undersea fiber-optic cables may be of the shallow-water type (with an outer sheath) or the deep-sea type (with only an inner sheath).

Both shallow-water and deep-sea cables have as their main components a core, a pressure-resistant layer and a sheath.

The core is at the center of the cable.  Its main component is the optical fibers, and it is the key element in optical communications.

The pressure-resistant layer consists of copper or aluminum tubing.  Its function is to minimize microbending of the optical fibers under external load so as to decrease microbending losses;  it also provide protection from water and carries current to the repeaters.

The sheath, made of steel wire, enables the cable to withstand the tensile stresses of laying and recovery, protects it from external damage, prevents corrosion and lengthens its service life.

Examples of the design of optical cables are shown in Fig. 3.  We have selected only two representative types: a US deep-sea cable and a Chinese shallow-water cable developed by Institute No 23 of the Ministry of the Electronics Industry.  In general the shallow-water cable is made by adding one or two layers of outer sheathing made of steel wire (both types have inner sheathing).  The tightness requirements for resistance to water pressure are less stringent in shallow-water cables, while the requirements regarding mechanical characteristics are more stringent.

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## IV. China's Lag Behind Other Countries

China's research on undersea fiber-optic cables began later than that of other countries, and progress has been rather slow. Although a 2-kilometer test specimen of shallow-water cable had been developed by 1984, China is still lagging behind in terms of cable capabilities and in design, manufacturing processes, and testing facilities. This fact must be taken seriously and development must be accelerated.

China's undersea fiber-optic cable is similar in design to French cables. The cable core is of the skeleton type, with the optical fibers laid into grooves and sealed longitudinally with a sealing paste. Because of inadequate manufacturing technology, the Chinese cable has a larger skeleton diameter than the French cable; the external structural components must also be larger in diameter, which increases material consumption and production costs. The US undersea cable was evaluated by a committee made up of representatives of 26 North American and European countries and was declared to represent the state of the art. Its main characteristics are that the cable core is integral, the optical fibers are tightly embedded in an elastic body, and it has superior longitudinal tightness. China currently lacks the continuous production equipment and technologies that would be needed for processes involved in such an integral cable design, and in addition its technologies for forming and welding pressure-resistant tubing of the proper size are inadequate, and the copper strip that would be used to produce the tubing varies in thickness and hardness and has excessive amounts of impurities that degrade weld quality, making it impossible to assure air-tightness of the welds.

Fiber-optic cables for undersea use are not identical with those for use on land. The optical fibers for transoceanic cables must have high strength: the strength standard is 2000 g, while for land cables 400 g is generally sufficient. In addition, undersea optical cables are manufactured in very long lengths. The length of a production unit is generally equal to the repeater spacing (about 30-70 km), so that the optical fibers too must be extremely long and must combine strength with this great length. The length required generally is 5 km or more; in the future it will increase to 20 km or more. China has not yet manufactured optical fibers for undersea cables; thus research on long, strong fibers is an extremely important basic research topic.

China has not yet begun research on high-strength connection technology for optical fibers. As noted above, if the length of the optical fiber is the same as that of the cable, no connections will be needed. But the length of high-strength optical that can be achieved is limited, and we therefore must study high-strength connection technology in order to join fibers of insufficient length before completing the undersea cable. The connection loss must not exceed 0.1 dB, and the strength of the connections must exceed that of the fibers.

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We must conduct research on ways of decreasing residual stresses. Because static fatigue can degrade the strength of optical fibers, every effort must be made to minimize the residual stresses of optical fibers in the completed cable. Residual stress levels of 0.05% or below have been achieved abroad.

Research on sealed connectors. Shallow-water cables are often damaged by anchors and fishing equipment, and sealed connectors must be used to connect the complete cable. Although China has developed several trial specimens, they have not yet been perfected. In addition, if there is a requirement for branching of cable lines, we must also develop sealed branching couplers.

Research is also needed on such matters as increasing the life of undersea cables, cable laying and recovery technology, fault location and maintenance techniques, and the like.

V. Suggestions

A. We should rapidly designate organizations and speed up their technical modernization. Undersea cable research and production abroad are generally divided between a research institute and a manufacturing plant. For example, in the United States, Bell Labs is the research unit and Simplex the manufacturer; in England, BTRL is the research unit and STC the manufacturer; in France, CNET is the research unit and Submarcom the manufacturer; in Japan there are two research units, KDD and NTT, while the manufacturer is Taiyo Kaitei Denrancho. We can also benefit from foreign experience by rapidly designating plants and institutes that have the necessary facilities and have many years' experience in undersea cable production and research. After the relevant organizations are designated, we should speed up their technical modernization and make a vigorous effort to catch up with the leaders.

B. We must adopt a realistic plan for the development of undersea fiber-optic cables and carry it out systematically, proceeding from shallow-water cables to deep-sea cables and from multimode (long-wave) fibers to single-mode fibers. In single-mode fibers, we should proceed from those designed for a wavelength of 1.3 microns to those designed for 1.55 microns. The design should proceed from the skeleton type to the integral type, and from short lengths to medium and long lengths. We should start with domestic circuits and proceed to international circuits.

C. Replacement of undersea metallic cables and construction of new lines along China's 18,000-kilometer coastline should make maximum use of the epoch-making new technology of fiber-optic systems.

D. We should be involved with the Pacific undersea fiber-optic cable circuits and connect China into them. Undersea fiber-optic cable experts from Bell Laboratories in the United States suggest that the transpacific optical cable from the United States to Japan should be branched to China from Guam, a

distance of about 4,000 kilometers.

E.   Construction of Asian international undersea fiber-optic communications circuits.  According to published reports, of the three optical cables to the Philippines that will be completed in 1988, one is from Japan with a branch to South Korea, the second is from Taiwan, and the third is from Guam.  Two additional cables will be completed in 1990:  one from Hong Kong to the Philippines and another from Japan to Hong Kong, again with a branch to South Korea.  In keeping with our open-door policy, we should increase our communications links with coastal nations of Asia and establish undersea fiber-optic communications between China and these countries.

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2.   "Current Trends in the Design of Transpacific Undersea Cables," DENKI TSUSHIN, Vol 74, No 453, 1984, pp 43-50.

[See chart on following page]

Table 1.　Transatlantic undersea cable systems

| Name of cable | Countries connected | Length (km) | Call capacity (3 kHz) | Type | Cable size (mm) | Began operation |
|---|---|---|---|---|---|---|
| **TAT-1** (First Transatlantic Telephone Cable) | U.S.-U.K. | 3600 | 48 | SB | 15.75 | 1955 |
| **TAT-2** (Second Transatlantic Telephone Cable) | France-Canada | 3525 | 48 | SB | 15.75 | 1959 |
| **TAT-3** (Third Transatlantic Telephone Cable) | U.S.-U.K. | 6530 | 138 | SD | 25.4 | 1963 |
| **TAT-4** (Fourth Transatlantic Telephone Cable) | U.S.-France | 6650 | 138 | SD | 25.4 | 1965 |
| **TAT-5** (Fifth Transatlantic Telephone Cable) | U.S.-Spain | 6420 | 845 | SF | 23.1 | 1970 |
| **TAT-6** (Sixth Transatlantic Telephone Cable) | U.S.-France | 6830 | 4000 | SG | 43.2 | 1976 |
| **TAT-7** (Seventh Transatlantic Telephone Cable) | U.S.-France | 6100 | 4200 | SG | 43.2 | 1983 |
| **CANTAT-1** (First Canadian Transatlantic Telephone Cable) | U.K.-Canada | 4590 | 80 | 0.6MHz | a 深海25.15 b 浅海15.75 | 1961 |
| **CANTAT-2** (Second Canadian Transatlantic Telephone Cable) | U.K.-Canada | 5270 | 1840 | NE(14MHz) | 37.34 | 1974 |

Key:　a.　Deep water
b.　Shallow water
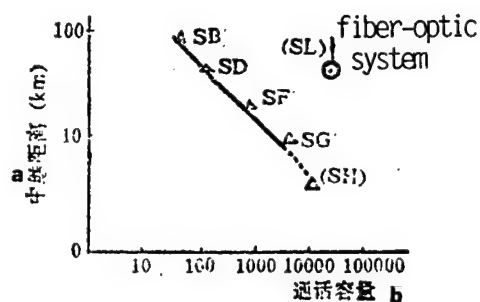


Fig. 1.　Repeater spacing versus call capacity

Key:　a.　Repeater spacing (km)
b.　Call capacity
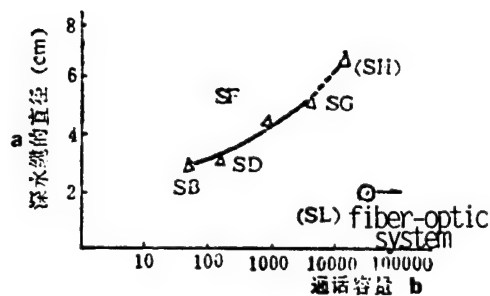


Fig. 2.　Undersea cable diameter versus call capacity

Key:　a.　Cable diameter (cm)
b.　Call capacity

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**U.S. undersea fiber-optic cable (AT&T)**

光缆芯 a
内铠装钢丝 b
铜管 c
聚乙烯护套 d

光纤 e
弹性体 f
中心 g
抗张元件

**Chinese undersea fiber-optic cable**

光缆芯 h
聚乙烯护套 i
铝管 j
聚乙烯护套 k
铠装钢丝 l
外被层 m

光纤（8 芯）n
聚乙烯骨架 o
信号线（2 芯）p
增强元件 q
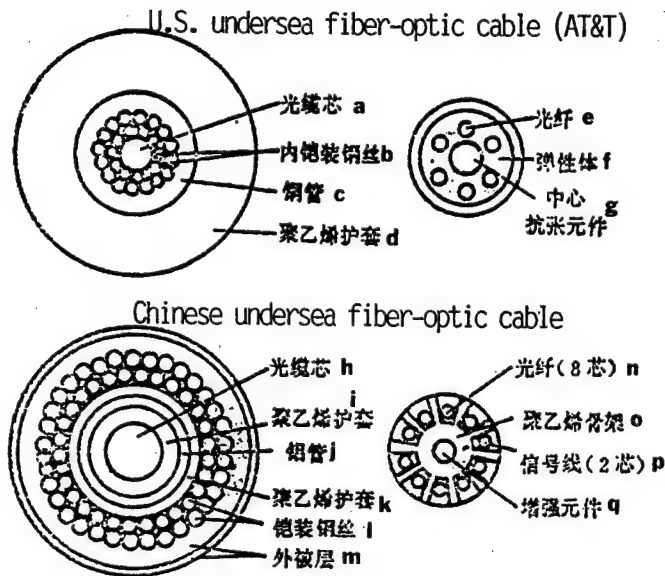
Fig. 3.   Construction of undersea fiber-optic cables

Key:   a.   Cable core
b.   Steel wire inner sheath
c.   Copper tube
d.   Polyethylene protective coating
e.   Optical fiber
f.   Elastic material
g.   Tension-resistant member
h.   Cable core
i.   Polyethylene protective jacket
j.   Aluminum tube
k.   Polyethylene protective jacket
l.   Steel wire sheath
m.   Outer layers
n.   Optical fibers (8)
o.   Polyethylene skeleton
p.   Signal wires (2)
q.   Strengthening member

Chinese cable produced by Institute No 23, Ministry of the Electronics
Industry

8480
CSO:   5500/4135

MARINE METEOROLOGICAL NETWORK BEING BUILT

OW290840 Beijing XINHUA in English 0814 GMT 29 Jun 87

[Text]  Beijing, 29 June (XINHUA)--China is now building a marine meteorological network involving 10 coastal cities and provinces, the State meteorological administration announced here today.

Scheduled for operation in 1990, the network will forecast typhoons, fog and other adverse weather conditions while providing ocean shipping guidance.

An administration spokesman said the network will be built with the Beijing National Meteorological Center as its main base to kink up with the Guangdong, Shanghai and Shenyang regional centers.

The spokesman told XINHUA, "We will do our part to promote coastal development and ocean shipping.  We will also gather information about global weather."

As an economically developed region, about one third of east China consists of coastal and open areas.

At the same time, a dozen foreign oil companies are cooperating with their Chinese counterparts in exploiting petroleum resources in the region.

The spokesman said China plans to establish 50 meteorological stations at important harbors and oil platforms to gather information about wave, water temperature and ice conditions.

The Beijing National Meteorological Center will build a marine data bureau and collect various materials for marine engineering, navigational guidance and offshore development.

He said telecommunications conditions in the meteorological field are improving.

/12913
CSO:  5500/4160

TELECOMMUNICATIONS CAPACITY BOOSTED

OW201414 Beijing XINHUA in English 1406 GMT 20 Jul 87

[Text]  Beijing, 20 Jul (XINHUA)--China added 3,818 long-distance telephone lines in the first half of this year, the vice-minister of posts and telecommunications, Wu Jichuan, announced here today.

Long-distance automatic exchange switchboards were installed in Harbin, Taiyuan, and Nanchang, bringing the total number of provincial capitals with such facilities to 21.

By the end of June, China had over 50,000 trunk telephone lines and had opened international direct dialling services to 17 countries and regions, Wu said.

To urban telephone services, China's post offices added a capacity of 240,000 lines, including 126,900 program-controlled telephone lines.  Urban telephone subscribers increased by 193,000, bringing the total number to 2,698,000 across the country.

The business volume of the posts and telecommunications service reached 1,836 million yuan in the first six months of this year, an 18.6 percent increase over the same period in 1986.

In the first half of this year, China's post offices handled 14 million parcels, Wu said, adding that the number of telegram clients increased by 51.6 percent and long-distance telephone service by 23.9 percent.

Post offices in various places opened such new services as express mail delivery, mail-order purchase, tape correspondence services, radio paging, and facsimile services.

Wu said that China's posts and telecommunications offered good service in the first six months of this year, and had no mail backlog.  He attributed the new progress to the reforms in enterprises and adoption of the responsibility system which mobilized the initiative of postal workers.

/9365
CSO:  5500/4164

RENMIN RIBAO ON NAVY'S TELECOMMUNICATIONS SYSTEMS

HK020927 Beijing RENMIN RIBAO in Chinese 29 May 87 p 4

[Report by Huang Caihong [7806 1752 5725] and Shu Jianping [5289 1696 1627]: "Chinese Navy's Communication Signals Reach Various Oceans and Continents"]

[Text] On 28 May these reporters learned from the leading organ of the Navy that the Chinese Navy's telecommunications signals can now reach all the four oceans and the seven continents. Today, Chinese naval vessels navigating in any ocean can keep in continuous touch with the Navy's leading organ.

In the past few years, while stepping up the systematic transformation of existing telecommunications stations to ensure that they meet the requirements for advanced data and language telecommunications and picture transmissions, the Telecommunications Department of the Navy has built up some modern large-sized telecommunications stations. Today, the Chinese Navy possesses one of the most powerful superlong wave telecommunications systems in the world and an advanced long-distance shortwave telecommunications system. New-type ultrashort wave stations for internal telecommunications in the formation of vessels have been used to equip naval units. Naval units along the coast have separately built up their own telecommunications relay networks formed by microwave and ultrashort wave repeaters which have helped to effectively improve the telecommunications link between outlying islands and the continent. More advanced telecommunications equipment and technology, such as optical fiber telecommunications, microcomputer telecommunications, and satellite telecommunications, have also been applied to the Navy's telecommunications system. The Navy's telecommunications system was used throughout China's first scientific survey of the Antarctic, the three scientific experiments carried out by Chinese scientists in the South Pacific Ocean, as well as the Chinese Navy's visit to the three South Asian countries and the several long-distance cruises by Chinese naval vessels. During the Antarctic scientific survey, a total of more than 260,000 telegraphic dispatches were sent and more than 510 radio telephone calls were made without error.

/6091
CSO: 5500/4161

PACE OF COMMUNICATIONS DEVELOPMENT QUICKENS

HK040540 Hong Kong ZHONGGUO TONGXUN SHE in Chinese 1013 GMT 2 Jul 87

[Text]  Hong Kong, 2 Jul (ZHONGGUO TONGXUN SHE)--According to Yang Taifang, PRC minister of posts and telecommunications, the pace of the development of China's posts and telecommunications service has quickened in recent years. Between 1981 and 1986, the number of telephone exchanges almost doubled.  At present, 240,000 local program-controlled telephone exchanges are open in 12 cities throughout the country.  Autocontrol long-distance lines account for 17 percent of the trunk network, while international direct dialing has been placed in operation successively in some cities including Beijing, Shanghai, and Guangzhou.  In the area of telegram communication, automatic relay equipment is now in operation in the capital cities of 20 provinces; telex exchanges are operating in 54 cities, and a public telegram automatic relay network and telex exchange network is initially taking shape.  Satellite communication and optical fiber communications are already in use on mainland China; and optical fiber cable is being installed as local relaying lines in 23 cities of 18 provinces.

In an article carried in the latest issue of JINGJI YU FALU [ECONOMY AND THE LAW], Yang Taifang pointed out, although the pace of development  of China's posts and telecommunications has quickened in recent years, this sector is still a significant factor restricting the development of the national economy because of its weak foundation, and this situation will not be radically changed in the near term.  Take telephones for instance; the number of telephones per 100 people is less than one; it is very difficult to install a telephone in large and medium-sized cities; the phenomena of being disconnected and poor audio quality are rather serious, and it takes a rather long time to connect long distance.

To further develop the posts and telecommunications business, the PRC minister of posts and telecommunications proposed a target of development by the year 2000:  To raise the capacity for posts and telecommunications and the volume of operation seven times, using the 1980 basis.  The number of telephones throughout the nation will be 33.6 million; in addition, various types of non-telephone services including telex, data communication, user facsimile transmission, and the transmission of visual data and electronic letters as well will be in operation; and the capacity for post handling will be 16 [word indistinct] articles.

/6091
CSO:  5500/4161

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BRIEFS

BROADCAST FACILITY PROTECTION--The Ministry of Radio, Cinema and Television and the Ministry of Public Security recently issued a joint circular on implementing the regulations governing the protection of radio and television facilities. The circular said: The regulations on protecting radio and television facilities, which the State Council promulgated in April this year, are an important decree the State formulated to protect radio and television facilities and ensure the safe transmission of radio and television programs. Radio and television departments at all levels and public security departments should spread the regulations through various forms. They should, under the leadership of the local government, continually organize the masses to do a good job in joint protection of radio and television stations. Public security organs should provide assistance and guidance. Radio and television departments should commend and reward those collectives and individuals contributing to protecting radio and television facilities. As for cases of theft and sabotage of radio and television facilities, particularly those cases causing serious damage and danger, public security organs must promptly solve the cases and deal a timely and serious blow to the criminals. [Text] [Beijing Domestic Service in Mandarin 2130 GMT 2 Jun 87 OW] /12913

SECOND TV STATION OPENS--Today, the Chuxiong television station, our province's second prefectural-level television station, was formally put into operation. This television station was established with the approval of the central authorities and the Ministry of Radio, Film and Television. After formally going into operation, in addition to promoting its news program, the Chuxiong television station will produce the program "Stories of Chuxiong" and the program "Economic Window" to present different aspects of the spiritual styles and features of the people of all nationalities in Chuxiong prefecture during the promotion of socialist modernization and to introduce the prefecture's natural conditions and customs. [Text] [Kunming Yunnan Provincial Service in Mandarin 1000 GMT 15 Apr 87 HK] /12913

SATELLITE COMMUNICATIONS DEVELOPING RAPIDLY--Beijing, 18 May (XINHUA)--
Communication satellites have helped China handle 90 percent of China's
international telecommunications, today's overseas edition of the PEOPLE'S
DAILY reported.  According to the report, China's satellite communication
started in the early 1970's, when four ground stations were set up in Beijing
and Shanghai with imported equipment.  "China now has direct communication
circuits to 35 countries and 739 international satellite communication lines,"
the paper reported.  "After adding satellite communication links over the
Indian and the Pacific Oceans, China now can handle international telex,
telephone, telegram, facsimile, and radio and television broadcasts," the
paper said, adding the country now has some communication lines available for
rent.  "The number of international telephone calls and telexes has increased
50 percent annually over the past five years," the paper said, adding in 1986,
China's telecommunication lines handled 17.65 million international telephone
calls and 5.99 million telexes, increases of 39.8 percent and 43.6 percent
respectively over the previous year.  Statistics show, China's international
telecommunications are still increasing by a big margin so far this year.
[Text]  [Beijing XINHUA in English 1023 GMT 18 May 87 OW] /12913

GUANGDONG TELECOMMUNICATIONS SYSTEM TESTED--Guangzhou, 10 Jul (ZHONGGUO XINWEN
SHE)--The  Foshan-Shunde-Zhongshan  480-circuit  digital  microwave
telecommunications project in Guangdong has been put through test run today.
The 30 new automatic circuits set up by Foshan, Shunde, and Zhongshan have
also gone into operation, ensuring convenient telecommunications.  It has been
reported that this is the largest (34 megabit) [zhao bi 0340 3024] China-built
microwave telecommunications system.  The building and start operation of this
telecommunications system, which connects the digital communications circuits
of Foshan, Shunde, and Zhongshan, have accelerated the pace of program control
telephone within the region, improved the quality of communication, and
increased domestic and international direct dialing in Shunde and Zhongshan by
over 300 percent.  As the project extends from Shunde to Jiangmen and connects
with the Zhongshan-Zhuhai optical fiber project which is now under progress,
it will alleviate the difficulties in long-distance telephone calls in
Jiangmen and Zhuhai.  [Text]  [Hong Kong ZHONGGUO XINWEN SHE in Chinese 1149
GMT 10 Jul 87]  /9365

CSO:  55004163

BRIEFS

CANBERRA, SRV DIRECT SATELLITE LINK--Australia's Overseas Telecommunications
Commission, OTC, has opened a direct satellite link between Australia and
Vietnam.  The commission managing director said at the opening ceremony
that the service would improve communications between the 80,000 Vietnamese
in Australia and their families in Vietnam.  Mr George Maltby said the growing
trade links between the two countries and between Vietnam and other parts
of the world would now be faster and more efficient.  He said the OTC
satellite link was one of a number of similar commercial ventures which
the commission intended to develop in the Asia-Pacific region.  Mr Maltby
said the installation of the satellite service in Ho Chi Minh City replaced
high-frequency radio links which were often hampered by atmospheric inter-
ference and sun-spot activity.  [Text]  [Melbourne Overseas Service
in English 0830 GMT 22 Jul 87]  /9604

CSO:  5500/4323

## CABLE AND WIRELESS OFFICIAL SPEAKS AT COMPUTER MEET

Hong Kong SOUTH CHINA MORNING POST in English 30 Jun 87 p 5

[Article by Greg Crew]

[Text]

LONG distance "picture transmission" commenced on radio telephone circuits as long ago as 1934.

It is only in the last few years that this technique has become sufficiently standardised to achieve strong market acceptance.

Growth rates in the number of facsimile machines, and the traffic generated by them, currently exceeds 100 per cent a year.

On some international routes fax calls constitute 47 per cent of the total traffic, and the proportion is growing rapidly.

Data is rapidly becoming as important as voice on the PSTN. Fax transmission reduces the effectiveness of CME, and current LRE techniques reduce the available data speed to 4800 bps (whereas 9600 is available on full voice quality circuits).

To accommodate fax, LRE equipment is being redesigned to use the "echo suppressor disable" tone to change the encoding algorithm, to allow 9600 bps transmission.

The volume of fax traffic is also starting to change busy hour patterns on some international routes, as fax messages can be sent during the local working day, whereas phone conversations occur during the convenient time windows shared by Hongkong and North America — or Hongkong and Europe.

Clearly the mixing of voice and data on the one network needs to be re-examined.

Hongkong is one of the few places in the world where originating international voice and data services are served by different access networks — "001" for voice and "002" for data.

Hongkong is unique in having the capability to obtain growth and volume statistics separately for the voice and data markets, and also the ability to configure its international networks to maintain this separation and to support the needs of each type of traffic.

As "002" traffic grew by 200 per cent in 1986/87, this is an important capability.

Cable and Wireless (HK) is currently re-arranging its route selection sequences at the International Switching Centre to avoid or minimise the effects of CME on data traffic.

However, the quality of each connection will still depend on the quality of the distant national network and its ability to differentiate voice and data traffic on the PSTN.

We have commenced discussions with a number of countries to achieve better overall quality of data transmission on the PSTN.

As an example, the Hongkong-Australia route is typical. In January 1987, there were 114 cable circuits and 53 satellite circuits.

Australia is in the process of providing LRE on the cable circuit section between Perth and Sydney, so all cable circuits would be limited to an effective data speed of 4800 bps.

Data traffic to Australia rose from 6.7 per cent of total in January 1986 to 12.5 per cent in December 1986, all due to growth of fax traffic.

Although modern fax machines automatically downgrade speed from 9600 bps if error rates are high, and will work satisfactorily at lower speeds, users are becoming accustomed to successful transmission at the highest rate.

We are arranging in Hongkong to give data calls ("002") first preference for satellite circuits, and voice calls ("001") first preference for cable circuits.

Similar arrangements are being designed for all major routes.

**PLANNED PACIFIC REGION FIBRE OPTIC NETWORK**

LEGEND
AN = Anchorage
GU = Guam
HA = Hawaii        PH = Philippines
HK = Hongkong    SE = Seattle
JA = Japan
KO = Korea
MA = US mainland

At the conference Mr Greg Crew also talked about an expanding fibre optic network in the region and around the world.
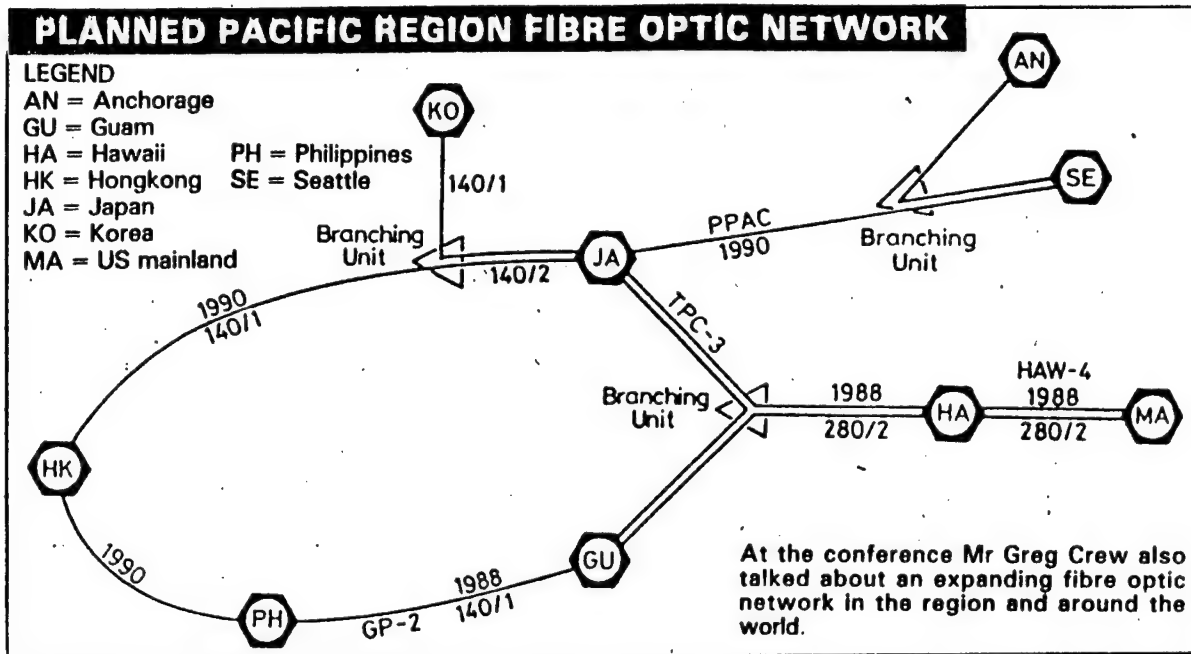
/9274
CSO,   5550/0176

## OFFICIAL EXPLAINS PLANS TO CREATE BROADCASTING PANEL

Hong Kong SOUTH CHINA MORNING POST in English 12 Jun 87 p 3

[Article by Bernard Fong]

[Text]

CONTROL over the air waves could soon pass from the Government to the public if the Legislative Council approves the creation of a Broadcasting Authority comprising 12 persons appointed by the Governor.

The authority — with the power to extend and revoke television, radio and future cable TV licences — could be a reality by summer, the Secretary for Administrative Services and Information, Mr Peter Tsao, said yesterday.

He also expected that the authority would extend Television Broadcasting Hongkong (TVB) and Asia Television (ATV) licences due to expire in late 1988 by 12 years "as approved in principle by the Governor-in-Council" in July 1986.

The authority, as recommended by the Broadcasting Review Board, would be an independent body for preserving the electronic media program standards and would do the work now done by the Television Authority and the Television Advisory Board of six members headed by Mr Tsao.

When the authority is set up, the Television and Entertainment Licensing Authority (TELA) shall be its executive arm, while the Television Authority and Television Advisory Board would cease to exist.

Nine of the 12 appointed Broadcasting Authority directors would be private citizens — one of whom would be chairman. One or more of the authority members could even be media personalities, Mr Tsao said.

"The tenure of members, other than public officers, will be for a period of up to three years but they will also be eligible for reappointment," he said.

The authority would set viewing standards by consultation with the public, providing that legal censorship guidelines are met.

The proposal is being gazetted today and will be introduced to the Legislative Council on June 24.

The secretary explained the need for such a body as "a matter of scrutiny and participation by the public" on broadcasting policy because the Government should not alone determine what the public wanted to see and hear.

Mr Tsao noted that public taste was constantly changing and censorship regulations should keep pace with it.

Though the authority-to-be would judge the moral and ethical standards of programs, it would still abide by the Current Code of Practice as it vets presentations for sexual and political content.

Television should apply a stricter standard on presentations than films because television programs were watched by a mass audience, Mr Tsao said.

A television feature that might harm friendly relations with other countries could be banned just as a film would, he added.

The secretary, now embroiled in the ongoing controversy over illegal Government censorship of films on political grounds, said the present Television Advisory Board assessed public viewing taste by culling mass opinion.

A survey completed last week showed that the public thought the board was too strict on programs after 11.30 pm, he said.

Mr Tsao said the majority of those surveyed believed the so-called adult viewing hours should be filled with mature entertainment — including scenes of nudity.

The late night features should do no harm to young, impressionable viewers because, Mr Tsao said, it was the responsibility of parents to keep the children in bed past prime television time.

TVB Pearl deputy program manager Ms Musetta Wu, a former censor, said her station already aired certain adult films in the evening, even though the more explicit scenes and the worst profanities were cut out.

At present imported programs are systematically screened while local features, though less tightly monitored, cannot escape the attention of censors who are told in advance of the presentations' storyline.

A local film maker and television producer, who thought several of his features were unreasonably edited, complained yesterday "censorship in Hongkong is far more subjective than it is in California.", for example.

But Ms Wu of TVB said each society had to set its own viewing standards to suit popular taste and not harm the public sensibilities, even though films deserved greater creative freedom than television features.

The authority's censorship powers could, however, be challenged by appeal. "The bill requires the authority to appoint a complaints committee consisting of not fewer than five of its members, and it would consider all complaints concerning alleged breaches of the provisions of the broadcasting licence, the code of practice or the Television Ordinance," Mr Tsao said.

/9274
CSO:   5550/0170

NEW TELECOM USER GROUP, CABLE, WIRELESS LINKUP

Hong Kong SOUTH CHINA MORNING POST in English 13 Jul 87 p 2

[Text]

A ROW is brewing following the formation of a breakaway telecommunications user group.

The new body was formed by members of the Hongkong Management Association Telecommunications User Group who felt they were not being allowed to express their views to the Government.

Members of the new Hongkong Telecommunications User Group generally favour increased competition in telecommunications and support the recent Executive Council decision to appoint a firm of independent consultants to review this issue and the introduction of cable television.

Group chairman Mr Roger Garner, who works for Cathay Pacific, denied they were rebels. He claimed members of Hongkong Management were now not real users.

"Of the seven committee members of that group six of them are not users, so really it can hardly be called a user group. The chairman of the rearranged Hongkong Management Group, Kieran Chatterjee, is a consultant with a consultancy firm not an actual user," said Mr Garner.

But Mr Chatterjee hit back, suggesting there was no need for a new group. "The rules of membership for this new group seem to be similar to ours so what's the purpose of forming a new group," he said.

"If they can attract members that we cannot attract then that's fine. But if it's a matter of just taking a member from an existing group and getting him to join another similar organisation then maybe we'll be dulling the overall impact of a telcommunications users organisation."

Mr Chatterjee added that people were questioning why the newly formed group seemed to be under the wing of Cathay Pacific.

"All the letterheads have been from the group, care of Cathay Pacific. The new group is calling for deregulation and competition in telecommunications which is causing people to wonder," he said.

Mr Chatterjee said that formation of the breakaway group had not affected the membership of the old body and that in fact membership had grown. "We did have 94 members before they broke away and now we have got 100 members so we are doing well."

The new body has around 30 members, some of whom are large companies.

● Cable and Wireless (Hongkong) Limited has signed an agreement for an optical fibre link up with the Philippines which will connect to other ASEAN countries.

Managing director Mr Greg Crew said that the cable system would provide digital telecommunications capacity south of Hongkong. It will eventually provide an undersea optical fibre ring connecting Hongkong, the Philippines, Guam, Japan, Korea and back to Hongkong, completing the planning process for the Trans-Pacific cable system agreed three years ago in Tokyo.

The agreement has been signed with Eastern Telecommunications Philippines. The link will cost an estimated US$160 million ($1.25 billion) and should be ready for service in 1990.

Meetings with other telecommunications authorities for the expansion of the link to more countries will begin soon.

/9274
CSO: 5550/0180

## BROADCASTING AUTHORITY TO REPRESENT WIDE CROSS-SECTION

Hong Kong SOUTH CHINA MORNING POST in English 9 Jul 87 p 6

[Text]

THE Chief Secretary promised yesterday to ensure the newly established Broadcasting Authority represented a wide cross-section of the community.

Winding up the debate on the Broadcasting Authority Bill 1987, Mr David Ford said the authority would include non-official members as well as Government officials.

He said the authority would examine carefully the many recommendations of the broadcasting review body and where appropriate, include them as conditions in renewed licences for the two television stations.

Mr Ford also said the Government would carefully consider policies for cable television and radio before drafting legislation to enable the regulation of these broadcasting services.

The convenor of the Legco group which examined the bill, Mr Allen Lee, welcomed the establishment of the authority.

Mr Lee said the group had made a number of recommendations for amendments to the bill which had been accepted by the Government.

The amendments related to the residential qualifications of the non-official members of the authority.

He said the group had recommended other more technical amendments involving the standing orders of the authority which had also been accepted by the Government.

Dr Ho Kam-fai also welcomed the bill.

He said the establishment of the authority would be a definite improvement on the existing television advisory board.

Dr Ho said greater public participation in the formation of the broadcasting policy would now be possible through the non-official members of the authority.

/9274
CSO: 5550/0181

GOVERNMENT INFORMATION SERVICE REPLACES TELEPRINTERS

Hong Kong SOUTH CHINA MORNING POST in English 16 Jun 87 p 7

[Article by David Chen]

[Text]

THE Government Information Service, nerve centre for the dissemination of information, has just replaced its outdated teleprinter network with a modern electronic data processing system — the GIS network — that claims to be 20 times faster.

Initial response, particularly from the media, has been enthusiastic and with a few suggested course corrections from typesetters in a Chinese language plant, the new system appears to be off to a good start.

Installed with the help of Hongkong Telephone, which provides Datapak service, the system is the first major network installed in a government department.

The network, officially opened by the department's director, Mrs Irene Yau, early this month, forms part of an overall plan to streamline the processing and storage of government data and communications, both inter-departmental and with the public.

Not only does the GIS network transmit to major local newspapers, periodicals, radio and television stations, but it also communicates with the Urban Council and three other government services — the police, the Housing Department and the Royal Observatory, said GIS's acting chief information officer, Mr William Lam.

Apart from faster transmission (the baud rate ranges from 300 to 1,200 bps), the system is more efficient and compact. Hongkong Telephone's DataCom Services, which installed the system, also claims it is more reliable with less likelihood of down time.

One major advantage is Chinese language and graphic transmission, something the old network could never provide. Facsimile continues to provide photo and document transmission in various languages, but the new network's Chinese transmission capability reduces transmission time considerably — even though it is slower than English-language transmission.

The change has been a big break for the Chinese-language media.

The main network is housed in a small corner on the sixth floor of Beaconsfield House. Altogether, there are eight local transmitting terminals, each equipped with two floppy disk drives, a network server and a dedicated terminal.

The network is linked to the system control — a cabinet that houses the network control panel, divided into five groups.

The dedicated server is similar to an LTT except that one of the floppy disk drives is replaced by a 20 Mbyte hard disk drive. It is this server that stores documents — if required — from the eight LTTs.

The network server stores messages from remote transmitting terminals (at present limited to three government departments and the Urban Council) connected through the Datapak switch network.

The network server also transmits "approved" documents over the broadcast network to "outstations" or printers installed at media offices.

The GIS plans to install a scanner, which will read hardcopy into the system for editing.

Right now, copytakers are required to "feed" the text into the system, using time on terminals that could be better used for inputting Chinese copy.

Inputting Chinese characters into the system is a unique experience for the dozen calligraphists working in the department. Many, never having used a keyboard previously, have to learn not only the keyboard configuration but at least one method of inputting Chinese characters.

The Chinese program that has been devised for the GIS comprises essentially Chinese DOS and a wordprocessor similar to WordStar.

It is a system based on that devised on the mainland and has a library of 7,000 characters — hardly sufficient, it would seem, to meet the needs of a department like GIS.

The system originally incorporated the universally accepted pinyin input method but the GIS system does not have this.

Instead, the main method — the one most of the calligraphists use — is what is known as "basic strokes", with which the operator needs only to input numerals.

The major drawback, as far as speed is concerned, is that the operator at times needs to input seven strokes for a character and has to choose from several character sets for the right one.

The method is disdained by many users who prefer to use pinyin or its simplified version called "yima" or easy code.

Another drawback is that although the character set in the Chinese system provides for traditional characters, they are converted from the mainland's simplified version, or at least appear to be; the conversion is apparently incomplete as several simplified characters have yet to be modified.

Faced with this handicap, however, the calligraphists at GIS have proved to be adept in the new assignment, some of them showing signs of becoming promising operators.

They could form the nucleus of experienced Chinese typesetters — albeit on an electronic keyboard.

BRIEFS

SRV-AUSTRALIAN SATELLITE STATION--Hanoi VNA July 22--A satellite earth station
named "Funflower" of the vista category built by the Overseas Telecommunica-
tion Commission of Australia (O.T.C.) in Ho Chi Minh City started operation
today.  Its construction began in April 1987 under a cooperation program
between the Vietnamese telecommunication service and O.T.C. the station will
carry out telex and telephone exchanges between Vietnam and Australia and
countries outside the socialist community through Intelsat.  Present at the
inauguration ceremony were Dang Van Than, director of the general post office;
Ian Stanley Lincoln, Australian ambassador to Vietnam, and J.R.R. Cook, head
of O.T.C. delegation.  [Text]  [Hanoi VNA in English 1534 GMT 22 Jul 87] /8309

CSO:  5500/4324

WAYS & MEANS OF SOVIET TV TRANSMISSION INTO COUNTRY

[Article by Franciszek Skwierawski: "Shortening the Distance; Satellite Thresholds"]

[Text]   The retransmission of  the Soviet TV program in  Poland  is  of  an experimental nature. It should determine the degree of public interest in such a  program initiative,  and thus the degree to which foreign TV will be viewed by  the  Polish TV viewer despite the language barrier.  The  transmission  of Soviet  programs  from Moscow to Warsaw is via  telecommunications  satellite, which,  at the threshold of the era of satellite TV, will make it possible for us  to prepare for new tasks.  The availability of Soviet programs  to  Polish viewers  occurs  during an especially interesting period when  many  extensive changes are occurring in the Soviet Union.

The  Soviet  TV  program is accessible only to viewers living within  a  20-km radius  of the Palace of Culture and Science,  where a  low-power  transmitter broadcasting  the  Soviet program on 51 channels,  and thus in TV band  V,  is located.

This  new,  modest broadcasting initiative of the Ministry  of  Communications raises  and draws attention to many problems.  A low-power transmitter is used to  retransmit  the Soviet program because there is no room at the  Palace  of Culture  and  Science for a larger one.  In addition,  it is not  possible  to install  a  proper antenna system there.  When,  in 1956,  a  TV  transmission station  was  located  in the tallest building in Warsaw and  an  antenna  was placed  on the very top of the spire (later,  the antenna was relocated  below the spire),  it was said that it was a temporary location,  expected to change in  several  years.  It  was projected that an efficient  TV  tower  would  be constructed  shortly in the 10th Anniversary Stadium area.  Thirty years  have elapsed and the TV tower,  like several other planned TV investments,  was not realized.  The  current  program initiative once more demonstrates the  urgent need to construct such a structure in Warsaw (such a tower is currently  being built in Prague).

In  discussing the implementation of the new TV investment,  Prof Dr Wladyslaw Majewski,  the  minister  of  communications,  also  stated  that  similar retransmission  transmitters  will  not be built in other  regions  of  Poland

because such capacity is lacking. The realization of such an initiative would mean that the program-two transmission network, which still does not encompass all of Poland (only 78 percent), could not be expanded.

The initiation of a third program channel in Warsaw disclosed many serious problems on the receiving side. It turns out that most TV receivers in operation are not able to receive programs broadcast in the higher frequency bands (IV and V). Such reception is possible only with color TV receivers and black- and-white TV receivers equipped with a so-called integrated head.

The introduction of the retransmitted Soviet program surprised our suppliers, who did not anticipate that a TV owner interested in receiving this program would have to install an additional antenna on his roof in addition to such needed accessaries as calbles, a switch and an amplifier. None of this equipment was available in the stores because the POLKAT Industrial-Service Plant in Wojcieszowic, the antenna production monopoly, received only one-half of its aluminum allotment this year.

I said that the retransmission of the Soviet program in Warsaw is of an experimental nature that should provide answers to many questions. All of the results of this experiment, however, may only be theoretical. If it turns out that residents of Katowice, Krakow or Gdansk will also want to receive this program in their areas, then--in the institutional realization of this--it will not be possible over the next several years because of the limited capabilities of ZARAT, the Polish monopoly for producing TV transmitters, which is in no condition to deliver even one more transmitter beyond the planned amount.

Thus, if anyone outside the Warsaw area wants to view this program, he will have to obtain his own satellite antenna and a properly adapted TV receiver. BUt first he must obtain a permit from the State Radio Inspectorate to make such an installation and justify his need to use such a receiver. The State Radio Inspectorate may issue a permit for a specified or unspecified time based on the "positive opinion of the authorized voivodship organ of the Ministry of Internal Affairs that is responsible for public order and state security." It should be added that the proper equipment cost about $1,300-1,500 and is available only in the West. Such barriers must be overcome if one wants to view a foreign TV program in Poland.

These are the problems that accompany the first modest attempt to provide the Polish viewer with a foreign program broadcast via satellite.

11899
CSO: 2600/663

DOMESTIC TECHNOLOGY USED FOR FIBER-OPTIC PHONE LINES

Warsaw EXPRESS WIECZORNY in Polish 7 May 87 p 7

[Article by m:  "Fiberoptic Lines Moving Into Warsaw: Three Lines Being Constructed"]

[Text]  The construction of three fiberoptic telephone lines in Warsaw is moving ahead as a result of vigorous efforts.  They include 6 km segments in the area of Barska and Sadyba and a 4.4 km line near Piekna Street.  This is just the beginning of the introduction of modern technology into the metropolitan telephone system.  Next year, 22 km of fiberoptic lines will be added to the capital's telephone system, with another 30 km in 1989 and 50 km in 1990.

The construction of fiberoptic lines will be based on Polish designs, primarily resulting from the work of Lublin scientists.  Teletra in Poznan is already building a unit, called TCC 120, capable of transmitting 120 conversations through a single fiberoptic line.  Teletra plans bulding new devices with a much greater throughput capacity and better technical features.

Nobody needs to be convinced of the advantages of fiberoptic technology.  Fiberoptics guarantee reliable data transmission (they are much more noise-resistant than the existing technologies) and are an economical replacement for more expensive copper cables.  Information can be sent through optical fibers to distances of up to 10 km without amplification.  With copper cables underground wells have to be built (with street excavations) every 2.5 km.

The decision to build fiberoptic lines in Warsaw is good news.  The fact that it is based on domestic technology is also good news.  It should be remembered, however, that great progress has been made in world fiberoptics, and our backwardness in this field is increasing.  Suffice it to say that throughput capacities of existing lightguides have already reached 480 conversations per line.  Our capacity is just one-fourth of that.  Lightguides are already being built which can carry a telephone conversation without amplification to more than 150 km, while our range is just 10 km.

Many experts are suggesting that the best way to keep abreast of the world leaders is to set up a center of lightguide technology with a large production capacity.  It is only then that we will be able to speak of genuine progress in fiberoptic technology.

9922
CSO:   5500/3018                       32

CARIBBEAN STATES PROPOSE REGIONAL POLICY OVERSIGHT BODY

FL201356 Bridgetown CANA in English 1308 GMT 20 Jun 87

[Text]  Castries, June 20--Caribbean Communist (Caricom) member states have
proposed a permanent regional body to oversee telecommunications policy in the
region.

Membership in the Caribbean Telecommunications Union will initially extend to
all member states of the Community, according to a Caricom Secretariat statement.

The union will be enpowered to grant membership to non-Caricom states and will
establish two committees--one to deal with policy and the other with technical
matters.

Another major issue agreed on here this week by the second meeting of the
Caricom Committee of Telecommunications Administrations was the approval for
the International Telecommunications Union's (ITU) study of the region's
telecommunications systems and requirements.

With regard to representation of the region at international conferences and
the preparatory steps to inaugurate the union, the Caricom Secretariat said it
will work closely with a sub-committee drawn from Organisation of Eastern
Caribbean States (OECS) Secretariat, Belize and Trinidad and Tobago.

The Castries meeting also reviewed developments in satellite telecommunications
and trade in services in the telecommunications sector.  The meeting also made
proposals for approaching the problem of frequency allocations in the region.

Nine member states attended the meeting under chairmanship of Mr. Johannes
Leonce, permanent secretary in the Ministry of Communications, Works and
Transport with responsibility for telecommunications matters here.

Objectives of the Caribbean Telecommunications Union:

1.  To promote, correlate and assist in the development of regional tele-
communications policy to meet the immediate and future needs of the region.

2.   To undertake studies to assist the development of the national components of regional and international telecommunications networks.

3.   To promote a general awareness of the telecommunications needs and concerns of the Caribbean region.

4.   To coordinate the exchange of information between the telecommunications administrations of members, with a view to harmonising the development of technical facilities and standards.

5.   To maintain permanent contact with the various international telecommunications entities in order to harmonise as far as possible the position of members in preparation for international and regional telecommunications meetings.

6.   To promote meetings of providers, users and advisers to discuss matters relating to the use and operation of telecommunications in the region.

7.   To encourage and assist members in the establishment and development of telecommunications industries.

8.   To promote the transfer of technology in the field of telecommunications among members.

9.   To promote and safeguard the interest of the region in the allocation and use of telecommunications resources.

/8309
CSO:   5540/115

REUTERS OPENS SATELLITE SERVICE FOR LATIN AMERICA

Kingston THE DAILY GLEANER (THE FINANCIAL GLEANER) in English 12 Jun 87 p 3

[Text]

LONDON — Reuters Holdings PLC, the leading world news and information organisation, announced that direct satellite transmission of Reuter news, pictures and market quotations for small-dish reception by its media and business clients in the Latin American region began on June 1.

Reuters will be the first company to use the Intelnet 1 satellite service provided by the International Telecommunications Satellite Organisation (INTELSAT) for small-dish, or micro-terminal, reception. Reuters will also be the first company to use International satellite communications to distribute its information services for international reception on small dishes at client sites.

Using the Intelnet service, Reuters will offer uniform reception of its services from the east coast of Mexico to the southern tip of South America, including Central America and the Caribbean, on 1.4 metre receive-only elliptical antennae which can be installed at the premises of Reuter clients.

Peter Holland, Manager, Reuters Overseas, said: "This is a development of major importance for both Reuters and its clients in the Latin American region. Intelnet 1 will enable Reuters to meet existing and potential client demand for high this vast area.

"Small-dish reception has considerable advantages in cost, efficiency and reliability over expensive land lines in an area where distances are great and the geography often hostile to land line communication.

"Existing Reuter clients will be better served, while direct satellite transmission will open up new markets for Reuters. Provincial newspapers, radio and television broadcasters, commodity and raw material producers, as well as domestic stock exchanges, will all benefit," Holland said.

Services available by satellite will include high-speed, digital transmission of news pictures, which will enable radio cast transmissions to be phased out. Textual news transmitted at three times to present delivery rate and real-time international financial and commodity market quotations will also be transmitted.

The services will be transmitted from an earth station at Reuters Technical Centre at Hauppauge on Long Island, New York, to an INTELSAT Atlantic Ocean Region satellite 35.860 kilometres above the Equator.

From June 1, the signal carrying general news, pictures and the Reuter Money and Commodity Reports are being transmitted via the Intelnet lease. This signal also contained a package of real-time quotations covering money, commodities and equities markets.

In September, Reuters plan to transmit a second signal which will carry the existing Satellite Data Systems (SDS-2) service, which is currently broadcast to Reuter business clients in the United States. The highly-successful SDS-2 service, which is available at present only via the United States domestic satellite Galaxi III, will be enhanced for clients in the Latin American region by 300 pages of regional news and prices.

The transmission system adopted by Reuters for the small-dish network will be supplied by Equatorial Communications Company of California, the world's leading supplier of satellite communications systems using small antennae.

Reuters supplies a wide range of services both to business subscribers and to the news media. It obtains its information from more than 110 exchanges and over-the-counter markets, from data contributed directly by around 2,700 subscribers in over 70 countries, and from a network of over 1,000 journalists, photographers and cameramen. It distributes this information via more than 100,000 video terminals and teleprinters, and directly into clients' computers.

/9274
CSO:   5540/117

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## NEW SATELLITE COMMUNICATIONS STATION DESCRIBED

Nassau THE TRIBUNE in English 3 Jun 87 p 6

[Article by Anthony Forbes]

[Text]

PRIME Minister Pindling will inaugurate the Bahamas Telecommunications Corporation's new $6 million satellite communications station next Wednesday at the Soldier Road radio site.

The INTELSAT Standard "A" Earth Station, recently installed by GTE International Systems Corporation, a part of GTE Spacenet, will handle international telecommunications services between the Bahamas and the outside world.

The station will provide international telephone, telex, data, fascimile, and television transmission services.

The Bahamas is one of INTELSAT's newest members, having joined the international consortium in May, 1985.

"The new earth station is a break through in technology in that it uses an antenna of 18 metres in diameter which is able to provide the same services as the 30-metre diameter antenna," Batelco General Manager Robert Bartlett said at a press conference this morning.

"Of course, this meant a significant saving for Batelco to enable us to devote a few more dollars to our other development programmes in the Family Islands," Mr Bartlett said.

He said that the earth station will operate via the INTELSAT-5 "A" satellite which is in orbit 22,240 miles above the Equator.

Mr Bartlett said the earth station will not bring television into people's homes as a regular broadcast but covering international events such as sports and other activities which needs to be disseminated worldwide.

"The Standard 'A' Station offers some new opportunities for Batelco," he said. "In addition to that and every telephone service, there will be high-speed data services which we can offer to the business community which is known as the INTELSAT business service."

"It also provides a very needed restoration facility in the event we have a loss of our submarine cable which now carries all of our international communication services between the Bahamas and the rest of the world," Mr Bartlett said.

He said the earth station can also provides a domestic satellite network which can link remote, rural Family Island areas into the local domestic telecommunications system via satellite and small earth stations which can be installed on those islands.

INTELSAT is the agency which handles all of the satellite services world wide and is comprised of 112 countries with 15 satellites in service over the Atlantic, Pacific and Indian oceans.

Mr Bartlett said that Batelco will establish direct international circuits with countries such as Canada, the United

States, Italy, Spain, Switzerland, the United Kingdom and Bermuda.

"And, of course, this will mean savings for Batelco in that no longer will we have to pay transit services to these countries to get our telephone calls through to countries that are over the far-flung areas of the earth," Mr Bartlett said.

"So we are looking forward with enthusiasm to bringing this earth station officially into service next Wednesday," he said.

Also on display at the press conference was a model of the INTELSAT-5 satellite which is now circling the earth at 22,240 miles.

Mr Bartlett said that signals from the Bahamas earth station will go up to the satellite and be re-transmitted to countries with which the Bahamas has established relations.

He said that the cost of the earth station, including building and civil works, is about $6 million.

Mr Bartlett said that the staff of Batelco were actively involved in the installation of the earth station, which was designed and provided by GTE International Systems Corporation.

"They provided the supervisory staff and we provided a significant amount of labour that assisted in the installation of the earth station," he said. "And this facility, after it goes into operation, will be maintained by Bahamian staff, fully maintained by Bahamian staff."

The project was undertaken as part of Batelco's mission to further national development by providing comprehensive telecommunications services and was completed by GTE ISC three weeks ahead of the contractually required date.

Local businesses, including banks, insurance companies, hotels and other tourism-related organisations, are expected to benefit from direct communications links via satellite.

GTE ISC, headquartered in Waltham, Massachusetts, is a world leader in the turnkey supply of satellite earth stations. The company has installed earth stations worldwide for international and domestic communications.

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CSO: 5540/118

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NEW RADIO BEAMED AT U.S., CANADA BEING CONSIDERED

Hamilton THE ROYAL GAZETTE in English 12 Jun 87 pp 1, 2

[Text]

A powerful radio station based in Bermuda and beamed at the northeastern United States and parts of Canada will be considered by the Telecommunications Commission next month.

The station, with a potential listening audience of 100 million people, is the brainchild of two New Jersey consulting engineers who have been working on the proposal for more than two years.

"We are applying for a licence for an international broadcasting station to operate in Bermuda which we consider a premium vehicle to promote Bermuda for tourism," said Mr. Edward Schober, a partner with Dr. Eric Stoll in Radio Techniques of Haddon Heights, New Jersey.

An application for the multi-million dollar AM station will be heard by the Telecommunications Commission on July 16 in the Senate Chamber. If approved, the "absolute earliest" the station could begin broadcasting would be the spring of 1988, said Mr. Schober.

Minister of Tourism the Hon. Irving Pearman had little comment on the station, saying he had not seen a final copy of the proposal. He said he met Mr. Schober and Mr. Stoll about 18 months ago when they were in the planning stages of the project.

"They were in Bermuda some time ago and we had discussions. We tried to assist them in what direction they could proceed. We talked generally and philosophically.

"I'm always happy when the private sector tries to make a dollar and promote Bermuda," said Mr. Pearman.

Despite its proposed location, the station's signal will be difficult to pick up on the Island because it will be aimed at the continent, said Mr. Schober.

"It would certainly not be competition to local stations," he said. "It's not our purpose to broadcast to Bermuda. It's our purpose to broadcast from Bermuda."

The station's primary reception area will stretch in an arc from Washington, DC, to Toronto, Ontario, to Boston, Massachusetts, an area home to more than 58 million people, said a written proposal that has been submitted to the Commission. A secondary area of broadcast has a population of 41 million, said the proposal.

The station's Bermuda content will be achieved through references to the Island in daily programming, announcements of coming events, promotion of Island establishments and services and even broadcast of concerts, said the proposal.

"It will provide a unique opportunity for tourist establishments to advertise directly to their target audience on the Eastern Seaboard," said the proposal.

Mr. Schober said the Bermuda theme will provide a focus for the station and a method of reaching an "upscale" type of listener — the frequent Bermuda tourist — which will in turn attract advertisers.

The proposal calls for a transmitter to be built on the northwest shore of Ireland Island North, for the studio and administrative office to be located in Hamilton and for a sales office to be established in New York City.

Fourteen or more Bermudians will be employed by the station in addition to one or two people off the Island.

"We're talking about several million dollars to build the station," said Mr. Schober. "A substantial portion we intend to raise in Bermuda."

The radio station will broadcast only at night, taking advantage of the night-time ability of radio signals to bounce off the ionosphere and reach a larger audience.

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CSO: 5540/119

## STATE-OWNED RADIO TO BECOME STATUTORY CORPORATION

FL242147 Bridgetown CANA in English 2041 GMT 24 Jun 87

[Text]  St Georges, 24 Jun--State-owned Radio Grenada, currently run as a
department of the government, is to be turned into a statutory corporation
within the next four months, according to its manager, George Grant.  He
told CANA the decision, communicated to staffers yesterday, would give the
station more independence of the government.

Grant felt that government's decision to turn Radio Grenada into a statutory
corporation was expedited by last week's visit to the island of Alva Clarke,
the secretary-general of the Commonwealth Broadcasting Union.

Clarke, after meeting with Blaize, told reporters he had advised the prime
minister that the station needed to fall in line with modern broadcasting
trends.

According to Grant, he had already worked out a budget of about EC 600,000
dollars (1 EC dollar, 37 cents U.S.) to run the station as a corporation.
The station was allocated EC788,000 dollars by government in this year's
budget.

Radio Grenada has been operating from makeshift facilities just outside the
capital city since 1983, when the station was bombed during the U.S.-led
invasion.

Grant said that part of the plan is to eventually move the station from its
present location, although he did not expect this to happen before the end
of the year.  He indicated that the staff, which totals around 42, would be
offered employment with the corporation.

Grant also said that by next week he hoped to resume broadcasting during the
1-4 p.m. period, during which Radio Grenada is now off the air.  "I intend to
put in its place music and information, but with a higher calibre of announcers
than we currently have," he added.

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CSO:  5540/120

SEAGA ANNOUNCES REVISIONS IN BROADCASTING POLICY

FK150114 Bridgetown CANA in English 2238 GMT 14 Jul 87

[By Paget de Freitas]

[Text]  Kingston, July 14--Prime Minister Edward Seaga today announced a revised broadcast media policy under which government will sell the AM radio division of the state-owned Jamaica Broadcasting Corporation (JBC), as well as grant licences for two new radio and two television services.

One of the radio systems and a television station will be for religious broadcasts.  Licenses will be issued for the other radio and TV stations, which will operate as commercial ventures.

Seaga also announced that the government's 25 per cent share in Radio Jamaica (RJR) will be sold to the public before year-end.

The prime minister announced the latest version of a continually refined policy in an address to the Media Association of Jamaica (MAJ), which represents the media houses and related institutions here.  Said Seaga:  One of the criteria for the awarding of licenses will be that licensees will within a specific period offer at least 50 per cent of their shares to the general public.

There will be a general provision against any one investor owning more than 10 per cent of the operating entity and other provisions will [word indistinct] the possibility of combining for purposes of control or monopoly.

Central to the media policy first announced nearly two years ago has been some form of divestment of the JBC, which operates two national radio services--AM and FM--and the island's only TV service.

Two small rural radio stations owned by the JBC were also expected to be sold in the divestment exercise, but apparently attracted little interests.  Seaga did not mention them today.

He said that much of the JBC's television facilities, including the main transmitters and the present channel allocation, will be retained and vested in a Public Broadcasting Corporation (PBC), which will be responsible for public affairs broadcasting.

The PBC will operate the present JBC-FM station, and along with the Jamaica Information Service (JIS), be relocated at the complex where the Creative Production and Training Centre (CPTC) is situated.

The CPTC will be the production kernel of the public service broadcasting system on radio and television, the prime minister said. In that way it will be able to fulfill its original mandate—to produce high quality Jamaican programming for the local media and eventually sale abroad.

JCS's AM service—Radio One—including its physical plant, offices, equipment and transmitters to provide island-wide service, will be sold to a licencee to operate an AM station with FM rebroadcast.

Initially the government had talked about leasing the AM radio operation, as well as morning television, but retaining a 25 per cent share. It later dropped the 25 per cent involvement.

In addition a licence will be given to operate a commercial television station on channels not now used by JBC-TV.

The licensee will be sold a transmission system which presently covers 70 per cent of the island on the basis that they move to full coverage within an agreed time frame.

The government will also grant a licence for the operation of a radio service with a geographically defined transmission coverage, Seaga said. He gave no details of the region contemplated.

The shut-down JBC regional stations covered north-east and central Jamaica. There is also a Radio West that still operates.

The regional radio service will have provisions to go island-wide within five years if that option appears viable.

Beyond these, the prime minister announced that licences will be granted for the religious radio and television stations to operate on a non-commercial basis. All churches incorporated in Jamaica will be eligible to participate in these stations.

The licensees for the private stations will be chosen not only for their ability to raise the necessary capital to finance their venture but also on their ability to operate the station and to produce quality programs, Seaga said.

The licences, as is currently the case, will require the owners to provide government with broadcast time so that important information will be certain to reach the public.

Seaga said that the management of the JBC has been putting together financial information which prospective licensees would require to advise themselves on the feasibility of broadcasting here.

Regarding RJR, Seaga said that the government will put its shares in the station on the open market for purchase by the general public. There would also be controls placed on a number of shares an individual or entity can hold. At present RJR is owned mainly by large people-based organisations, such as trade unions and churches, as well as workers.

The landscape will have greater programming choice, far greater diversity of ownership, and at the same time, strong controls to ensure that the public good is served, Seaga said.

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CSO: 5540/124

OFFICIALS PROVIDE DETAILS OF MONTEGO BAY TELEPORT

Kingston THE SUNDAY GLEANER in English 14 Jun 87 p 1

[Text]

MIAMI, Florida, June 12:
"Jamaica is in the final stages of negotiations with corporate interests to make Jamaica's teleport a reality by the end of 1987", according to the Hon. Pearnel Charles, Minister of Public Utilities and Transport of Jamaica. Mr. Charles made his remarks before the Telecommunications Conference in Miami yesterday.

"The teleport will fulfill three major objectives of economic development for Jamaica, local and foreign investment, creating employment and opening new technological areas for possible exploitation. The teleport can become a magnet for new business enterprises.

"Even those who doubted that the teleport facility could be created, and opposed Jamaica's efforts to get the project off the ground, are now seeing the concept as an attractive extension of their own businesses," he said.

Jamaica, according to Mr. Charles, will maintain equity interest in the teleport because of national security and national interest. Although the project is not to be controlled by the government, it will nevertheless, be a participant.

## Opportunities

"Technology often times causes displacement of workers, but it also creates new opportunities for training, employment and production, and that it is up to each Caribbean country to exploit these opportunities as best they can", he said.

While advancing in the telecommunications area, human needs should not be ignored, and efforts should be made to bring telephone communications to small businesses, farmers and homes throughout the island.

The conference, sponsored by the Caribbean Central American Action at the Hyatt Regency Hotel in Miami, Florida, was attended by communication professionals of the U.S. and Caribbean Basin.

Mr. Roy Anderson, North American Director, Jamaica National Investment Promotion Ltd., (JNIP) also addressed the conference.

The meeting's purpose was to explore new and on-going developments in telecommunications in the Caribbean Basin, and was aimed at Government and private sector individuals and organizations involved in economic development and telecommunications in the region.

## Revolution

Mr. Anderson said, "Jamaica's teleport facility, to be constructed in Montego Bay, will revolutionize the way the Caribbean does business, and change the face of service industries for years to come."

The teleport concept will be the first off-shore earth station with direct linkage to the U.S., and will service data entry, electronic transcription, electronic document distribution, video teleconferencing, specialized nonswitched voiced services and database maintenance.

"The teleport", said Mr. Anderson, "came about because of the deregulation philosophy of the Reagan administration, and the conventional wisdom of the U.S. Federal Communication Commission and the International Intelstat Organization.

"The project is a joint venture guided by JNIP, with National Investment Bank of Jamaica and Teleport International, which includes Contel ASC and C. Itoh."

Three thousand data entry personnel are currently employed in Jamaica, and with the establishment of the teleport, several thousand additional jobs will be created in data entry, reported Mr. Anderson.

"As the teleport becomes fully operational, it will have the potential of relieving some of Jamaica's external debt while reducing the country's unemployment rate. Some 10,000 persons will find jobs directly or indirectly resulting from the project," he said.

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CSO: 5540/121

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BRIEFS

TELECOMMUNICATIONS STRUCTURE--Kingston, July 7 Cana--Telecommunications of
Jamaica, the holding company set up to operate the Jamaica Telephone Company
and the international telecommunications company, Jamintel, has an authorised
share capital of J$1 billion, telephone company chairman Mayer Matalon said.
The government is the majority shareholder in the new company with the British
company, Cable and Wireless, holding 20 percent.  Cable and Wireless acquired
its 20 percent through the 49 percent it formerly held in Jamintel plus the
payment of an additional  US$20 million by the government.  The telephone
company was about 95 percent owned by the government.  Small shareholders,
who did not take up government debentures when the company was taken over in
the 1970s, held the remaining telephone company shares.  They will be offered
shares in Telecommunications of Jamaica.  Matalon said the proposed exchange
is for J$17.34 in Telecommunciations of Jamaica for each 50 cent ordinary
shares in the telephone company.  "This would mean that each holder of an
ordinary share in the Jamaica Telephone Company, Limited would receive
17 one-dollar shares in Telecommunications of Jamaica, and would be paid the
balance of 34 cents in cash." [Text] [Port-of-Spain TRINIDAD GUARDIAN
in English 8 Jul 87 p 5] /8309

CSO:  5540/124

## 2 REMOTE GROUND STATIONS INAUGURATED

PA022102 Caracas Television Service in Spanish 1600 GMT 29 Jun 87

[Text] Pursuant to the government's policy of developing the border areas, President Lusinchi inaugurated two remote land stations in Santa Elena de Uairen and Luepa, Bolivar State. The event started with a conversation between the head of state from the Luepa military base and Carmelo Lauria, minister of the secretariat of the presidency, in Miraflores. This was the official inauguration of the telecommunications service. President Lusinchi stated that this is a most modern system that will not only serve for telephone communications, but also will bring Venezuelan radio and television to the frontier. In this regard, President Lusinchi said that this is like bringing national culture to our nation's borders. It will also give us the possibility to send our culture to other areas of South America and the Caribbean, Lusinchi said.

In his speech, President Lusinchi said that this system was scheduled to start operating December 1987, but the need for more modern communications speeded up the work.

[Begin Lusinchi recording] [Passage indistinct] The region of Luepa and Santa Elena de Uairen will be able to communicate with the rest of the country in a constant and safe manner. Just as I told Dr Lauria at the inauguration, this system will serve to bring Venezuelan radio and television to this area and to go beyond our borders. Our signal may even reach north Argentina and the entire Caribbean area. Therefore, our presence as a country will now be stronger. [end recording]

President Jaime Lusinchi stressed the importance of populating our borders, but with stability and security for all in all aspects of life.

[Begin Lusinchi recording] Yes, we certainly must do this. We must populate our borders and promote development, but, of course, we must create an infrastructure that can allow Venezuelans to live in border areas, and we are doing just that. We need a communications, health, and educational structure. Civilization must come here and give man better opportunities for him to remain here. [end recording]

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CSO: 5500/2048

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BRIEFS

TV STATION IN POL-E-KHOMRI--Kabul, 4 Jul (BAKHTAR)--The local television station in Pol-e-Khomri District (one of the industrial centers in the country) of Baghlan Province started to telecast local programs. The Pol-e-kHomri television station will broadcast its daily programs for four hours except Thursday. A three-hour daily TV broadcast is currently active in the provinces of Herat, Kandahar, Nangarhar, Ghanzi, Badakhshan, Helmand, Kunar, and Khost District. [Text] [Kabul BAKHTAR in English 0415 GMT 5 Jul 87 LD] /9738

CSO: 5500/4723

INEFFICIENCY IN TELEPHONE OPERATIONS SCORED

Dhaka THE NEW NATION in English 24 Jun 87 p 5

[Editorial]

[Text]    As disclosed by Prime Minister Mizanur Rahman Chowdhury in Jatiyo Sangsad on Monday, all district headquarters will be brought under the nation-wide dialling (NWD) system by 1989. The Prime Minister who is in charge of the Ministry of Post and Telecommunication also said in reply to a question that an expansion plan for the upazila level could be taken after the district headquarters were brought under the N.W.D.

Expansion of the NWD system certainly has great developmental potential. Telecommunication is an essential element in infrastructure and development of peripheral areas will remain a chimera unless these are connected under a modern and efficient telecommunication network. Therefore, all we can say is that all efforts should be made to attain the target in this sector.

While fast expansion of telecommunication is one of the highest developmental priorities, expansion without consolidation is as unreal as it is problematic. At present the capital is connected by the STD system with the larger cities of the country. But the STD is so inefficient or overloaded that connection is often not available and subscribers have to resort to trunk booking. The dialling system sometimes does not seem to work even within the same circuit, for example, Dhaka to Tongi or centre of Dhaka to Mirpur. Introduction of a modern system by itself hardly improves service unless operation is efficient. But the STD system is

here for about 25 years and yet we could not maximise its operational efficiency. In the light of our past experience we are to ensure that operational efficiency goes hand in hand with expansion and modernisation. The public coin boxes frequently remaining out of order are an instance of inefficient operation.

It was also reported that the capacity of the exchanges is not being expanded. In the capital there are six telephone exchanges including the central exchange and of them three exchanges are finding it very difficult to provide new connections to subscribers. A total of 88,642 applicants are awaiting telephone connection in different parts of the country. The Third Five Year Plan envisaged creation of 76,000 additional telephone lines in response to the growing need. However, in the developmental perspective numerical expansion of telephone lines is less important than geographical expansion of the network. Implementation of the plan of connecting all the upazilas under the network by the year 1991 is vital in this regard.

/9274
CSO: 5550/0168

## ITI MODIFIES TIEUP TERMS WITH ITALIAN FIRM

Calcutta THE TELEGRAPH in English 26 Jun 87 p 8

[Text]

New Delhi, June 25: In an effort to make the best of a bad bargain, Indian Telephone Industries (ITI) has now decided that its collaboration arrangements with Face Standard of Italy will be only for fully electronic instruments and not for the rotary telephones as envisaged at the time of signing the contract four years ago.

Under the changed arrangements, Face Standard will provide the necessary knowhow without any additional charge for productions of fully electronic telephone instruments. It has also agreed to take back all capital goods rendered surplus following the decision to switch over from rotary to electronic instruments.

ITI is now evaluating the samples of the electronic instruments and experts are keeping their fingers crossed, hoping that this will not go the way of the rotary instruments.

The earlier contract with Face provided for the production of 500,000 rotary telephones and 250,000 additional critical components per year by ITI at each of its Bangalore and Naini units.

Sadly enough, so far ITI has not been able to start production under this agreement. Face Standard had supplied more than 100,000 instrument kits for assembly almost a year back and more than 90,000 kits are awaiting clearance by the customs.

The Italian company had been chosen as collaborator on the basis of global tenders. The company had promised that the instruments to be provided by them will meet the relevant specifications of the department of telecommunications. But, the tests on the first lot of telephone instruments assembled from the kits failed to meet certain essential parameters, like the transmission performance, the drop test, the slip test and the hook switch weight test.

ITI insisted that these were essential for proper quality of speech and adequate reliability of the instruments in the network, and there could be no compromise in this respect.

Following negotiations with the collaborators, it was agreed to provide alternate components and modify the design of the body to meet the specifications of the department of telecommunications. A few instruments with the modified body and new components have been successfully tested.

The design of the rubber pads for the telephone instruments is being modified following the tests. After a few more modifications, it is expected that the bulk assembly and supply of the instruments from the modified kits will be resumed.

The collaborators have agreed to supply free of cost all modification materials to bring the telephones in line with the new specifications. In addition, they have agreed to give a five per cent discount on the fob value for 90,000 kits supplied in the second batch.

(Economic News Service)

/13046
CSO:  5550/0177

COMMUNICATIONS MINISTER ON DIGITAL EXCHANGE PLANS

Madras THE HINDU in English 6 Jun 87 p 7

[Text]

NEW DELHI, June 5.

A formal decision on the choice of technology for the second digital electronic exchange (ESS II) factory is expected shortly but the odds are on the Indigenous C-DOT (Centre for the Development of Telematics) technology as against the French Alcatel.

This was indicated by the Union Minister of State for Communications, Mr. Santosh Mohan Dev, in an informal chat with presspersons here last evening. He said digital electronic exchange equipment upto one lakh lines could be imported to meet the immediate needs till indigenous production based on C-DOT technology commenced, hopefully by 1988-89.

The Prime Minister promised to step up the seventh plan allocation for telecom development to Rs. 6,000 crores at 1984 prices, from the present level of Rs. 4,010 crores. The increase in allocation would enable the Department of Telecommunications to add 16 lakh direct exchange connections, as compared to 11 lakh connections made possible with the allocation of Rs. 4,010 crores. If the Plan allocation was not stepped up, the waiting list for telephone connections would increase to 15 lakhs by 1990 from 11.43 lakhs in December 1986.

On the second ESS factory, the Minister said a decision was already taken to set it up in Bangalore in collaboration with Alcatel. The decision on the location remained unchanged but on collaboration with Alcatel there were second thoughts. The C-DOT had claimed that it was well on schedule in developing the technology for a digital electronic exchange and this could be adopted in the proposed factory. The cost per line claimed for the C-DOT technology was in the range of Rs. 3,500 compared to Rs. 7,000 for the Alcatel technology. The C-DOT had licensed its technology for 128 line PABX and 128 line RAX (Rural Automatic Exchange) for commercial production. The first C-DOT 512-line module was expected to be installed by September and the 4000-line module was expected to be commissioned by December.

According to the Communications Ministry, it would take a year to get over the teething problems and to effect transfer of technology for manufacture of the 4000-line exchange. Thus, production of exchanges upto 4000-line could not be taken up before 1988-89. If the ESS II was based on the C-DOT technology and the targets set for the Seventh Plan for expansion of line capacity could not be achieved. In view of this, the option being considered is to go in for import electronic exchange upto one lakh lines to meet the immediate needs, until indigenous production from the second ESS factory begins.

Indigenous manufacture: Mr. Santosh Mohan Dev also pointed out that even in the C-DOT equipment 60 per cent of the components were imported. It was not as though there was no indigenous capability to manufacture most of these components but the volume required would not be adequate to make indigenous manufacture economically viable. The surplus labour in the ITI, Bangalore, consequent on the switchover from Strowger to digital exchanges could be used for in-house production of some of the components.

Besides electronic exchange equipment, various types of transmission equipment were proposed to be produced indigenously. The Madhya Pradesh State Electronic Development Corporation had entered into a collaboration agreement with Furukawa of Japan for optical fibre cables and with Fujitsu of Japan for manufacture of optical fibre equipment. The Hindusthan Cables and ITI had signed a memorandum of understanding with NKT of Denmark. The HCL would set up a factory to make optical fibre cable in Allahabad while the ITI would make optical fibre equipment in Bangalore.

Digital microwave equipment would be manufactured by the ITI and the Bharat Electronics Limited in collaboration with NEC of Japan. Digital coaxial equipment would be made by the ITI in collaboration with AT&T Philips of Holland. The transfer of technology agreement also provided for manufacture of digital multiplex equipment. The other equipment to be made indigenously included UHF systems, frequency division multiplex equipment, multi-access rural radio system, low cost satellite earth station equipment, digital TAX equipment and electronic telex exchange equipment.

/9274
CSO: 5550/0171

## SPACE AGENCY CHIEF DISCUSSES SATELLITE, OTHER PLANS

Madras THE HINDU in English 21 May 87 p 6

[Text]

NEW DELHI, May 20.

INSAT-1C, the manifested date for whose launch by the European launch vehicle Ariane is February 1988, is already committed to 90 per cent of its capacity, Dr. U. R. Rao, Secretary, Department of Space (DoS), and Chairman, Space Commission, said, speaking on the 'Present Plans and Scenario for the Year 2000 for the DoS', at the National Institute for Science, Technology and Development Studies (NISTADS) here yesterday.

This reflects the enormous growth in demand for satellite-based services with the INSAT-1B being operational for nearly four years, Dr. Rao said. This also implies that hardly any back-up capacity is available, as normally not more than 60 per cent of the transponder capacity is loaded.

The space-segment of the INSAT-1 system, as originally envisaged, was to consist of two multi-purpose satellites, one as the primary satellite providing all services and the other as a major path satellite providing certain additional service utilisation and also certain on-orbit back-up capability. As a consequence of the Challenger disaster, the delay of nearly two years in the launching of INSAT-1C has resulted in the overloading of not only 1B but also 1C.

The European Space Agency (ESA), which is currently validating Ariane's liquid hydrogen ignition, is expected to confirm the 1C flight schedule by July. INSAT-1D, which is to follow 1C and is currently being fabricated, will either be launched by the American Delta launch vehicle in March 1989 or by Ariane in March-April 1990. The test satellite of the indigenous INSAT-2 system is also expected by 1990. The launch is expected to cost around Rs. 750 crores.

**Beyond projections:** The performance of 1B and the diverse services it has provided has been beyond all projections, Dr. Rao said. According to him, no satellite system in the world is overloaded like this. "We have also switched on the stand-by transponders," he said.

Dwelling on the operation and utilisation of the INSAT-1B he said all the 3961 two-way voice or equivalent circuits had been loaded and were in operational use, over around 68 telecommunication routes. Some 80,000 route-km of telecom links have also been provided by the satellite. This compare with about 58,000 route-km provided in over three decades of telecommunication development through ground links. 'The revenue for three years from telecommunication alone has paid for the INSAT-1B system,' he said.

A 50-station pilot phase Satellite-Based Rural Telegraphy Network (SBRTN) is being implemented in the North-East region. With this, the total number of additional earth stations already approved exceeds 300. These include dedicated satellite links for business communication networks, links and networks of several Government departments and public sector undertakings, and the network of the National Informatics Centre (NIC).

Dr. Rao also referred to the remarkable expansion of TV coverage in the last few years and said this would not have been possible without the INSAT TV-feed capability. Of the 187 TV stations in the country 182 were in the INSAT-1B network. Regional transmission has been commissioned in Andhra Pradesh using the 'hot transponder' mode on board the INSAT-1B. Similar regional TV-feeds will be extended to transmitters in Kerala and Orissa with the launching of INSAT-1C.

The Department of Space recently conducted an experiment using satellites of other countries to validate a small package that has been developed for Satellite-Aided Search and Rescue (SAS&R). This is to be added to the INSAT-2 system. This programme is being developed as an inter-agency programme with the DoS as the nodal agency for guiding and co-ordinating the development of the Indian programme.

**Technology spin-offs:** As much as 60 to 70 per cent of the expenditure — minus the salaries — of the DoS goes back into the indigenous industry, Dr. Rao said and highlighted the importance of the space-industry interface for India to become self-reliant in space technology.

About 100 technology spin-offs from the space programme have been transferred to the industry with a success rate of about 98 per cent. This is expected to go up to Rs. 620 crores between 1985 and 1990, compared to Rs. 10 crores in the decade after 1970. In this context, he said a collaboration of Midhani Steels, the Defence Metallurgical Research Laboratory (DMRL) and ISRO successfully fabricated 16 numbers of rolling maraging steel rings of required toughness for INSAT-2 after 15 of those supplied by a West German firm were rejected.

The existing export controls on several systems required for the space programme will only become more severe as a result of the recently (April 16) initiated seven-nation embargo on space technology, Dr. Rao said. "It is already difficult to get gyros, space navigational platforms, radiation-hardened devices (to survive radiations from solar flares of greater than 10,000 rads), Kevlar and Inconen alloys.'

Though this embargo will not affect the Polar Space Launch Vehicle (PSLV) programme, which is already nearing completion, it may put some hurdles in the development of the cryogenic engine for the Geosynchronous Space Launch Vehicle (GSLV) programme, he said. The cryo-engine makes use of a turbo-pump, which rotates at a speed of 60 million revolutions per minute. As for liquid hydrogen, "nobody is going to part with this technology," he said. "There is no alternative to developing it entirely on our own and we are confident that we can do it."

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CSO: 5550/0164

CALL FOR RENEWED NONALIGNED NEWS POOL

Bombay THE TIMES OF INDIA in English 11 Jun 87 p 14

[Text]

HARARE, June 10 (PTI).

INDIA today urged the non-aligned movement (NAM) to take steps to disengage itself from the 'throttling hold' of the Western global information system and work for an effective information grid that reflected the ardent and cherished aspirations of the third world.

The idea for such a grid for quick and efficient news flow among developing countries was first mooted by the Prime Minister, Mr Rajiv Gandhi, at the Harare NAM summit last September, in view of significant technological innovations in the field of communication and the widening technological gulf between the developed and developing countries.

The call was renewed by India's information and broadcasting minister, Mr Ajit Kumar Panja, who told NAM information ministers' conference that opened here today that NAM would to continue to resist the 'unjust' flow of information in the world.

However, he said, 'we find that side by side with the reality of the 'information society' in some of the advanced countries, even rudimentary facility and infrastructure in the field of information and mass media are lacking in many non-aligned nations.

Panja said while fighting the 'menace of misinformation and disinformation' spread by the developed West, NAM was facing the twin challenges of spreading extensive awareness about events in their correct perspective and about developments in the third world in their relevant contents.

**CHALLENGE**

"It is a formidable challenge with which we have been grapling for a long time — a challenge that has to be met squarely, resolutely and with continuing vigour", Mr Panja said.

He said India was moving along these lines with its radio providing a wide sweep and coverage, its television reaching out to 70 per cent of the population, its print industry registering a remarkable improvement and the country gaining experience in solving its software problems.

He said India was willing to share its experience with other developing nations to help correct the imbalances in the flow of information and to ensure that all countries came to possess at least the basic infrastructure of relevant mass media.

Mr Panja said the non-aligned news agencies poll had stabilised itself and was poised for further growth, but to make it an effective instrument of decolonisation of information "it is imperative that its stories fined increasing utilisation by the end-users in member countries. For this purpose there is need for an institutionalised mechanism to monitor the progress periodically," he said.

Turning to southern Africa where "we have to take effective steps in implementing the decisions of the Harare summit", Panja said it should be the movement's endeavour to provide on priority, support to the news agencies of the frontline African states, to the South-West African People's Organisation (SWAPO), and to the African National Congress.

The Press Trust of India, a leading partner of the news pool, had taken several measures in this regard, Mr Panja said. The All India Radio and Doordarshan were also giving due prominence to issues and events in southern Africa, he said, and referred to the recent NAMEDIA conference in New Delhi to sensitise the media and the people to the epochal events in Africa.

He expressed the hope that NAM information ministers could consider effective steps to encourage the media and other organisations to voice their support for the frontline states' first against oppression and other vital issues like the rights of Palestinians, protectionism and problems in Central America.

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CSO:  5550/0173

## DOORDARSHAN CHIEF DISCUSSES TELEVISION PLANS

Bombay THE TIMES OF INDIA in English 23 May 87 p 5

[Text]

BOMBAY, May 22.

THE second channel of the Bombay station of Doordarshan will have a more powerful 10 kW transmitter soon and a suggestion to extend the duration of its telecast up to 10 p.m. is under consideration, Mr Bhaskar Ghose, director-general of Doordarshan, said here today.

There was also another proposal to link the four major metropolitan cities through channel II.

Mr Ghose was speaking on "The role of television in mass communications" under the auspices of the Public Relations Society of India.

He said there were 198 transmitters at present while a solar-powered transmitter had been installed in Rajasthan and a few more in Lakswadeep and Andaman and Nicobar Islands together with high-power 10 kW ones to cover 95 per cent of the country by TV and 700 million people.

Mr Ghose revealed that the Joshi committee report had been accepted "to a very large extent" and Doordarshan was considering implementing some of its proposals.

He conceded that he had received complaints from the South that programmes in Hindi were not acceptable to viewers in that part of the country.

The states will have their own broadcast catering for specific areas and specific needs by either 2110 or 2120. Maharashtra will have all programmes originating from the Bombay station till 8.40 p.m. and other states like Andhra Pradesh and Tamil Nadu as well as West Bengal will follow suit on micro-wave link-up with satellite.

Mr Ghose pointed out that Doordarshan was conscious of its objectives and had formulated well-thought-out and well-reasoned ideas. It was hiring 60 new people and training them at the Film and Television Institute of India who will constitute the backbone of the TV system. They will include journalists and cameramen with reporter-based stories and little comment.

The aim, Mr Ghose assured his listeners, will be to produce meaningful, absorbing and attractive programmes for a large segment of the Indian people.

Mr K. R. Hattangadi, chairman of the PRSI, said TV was growing in importance and presented a ready medium for those desiring to send their messages to a large audience.

Mr Ravi Shyam, PRSI secretary, proposed a vote of thanks.

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CSO:  5550/0165

EXCLUSIVE TELECOM  NETWORK FOR BUSINESS, INDUSTRY PLANNED

Madras THE HINDU in English 4 Jul 87 p 1

[Text]  Madras, July 3.  An exclusive telecommunication network for business
and industry will be introduced in the country before the end of this year.

According to the Union Minister of State for Communications, Mr. Santosh
Mohan Dev, a proposal in this regard has been approved by the Prime Minister.
The network would have data and voice communication systems and other
facilities.

The demand for this "business subscriber network" was being assessed.  The
Madras Telephones has been asked to find out what will be the requirement in
the Adyar industrial area for this system.  All major cities would be brought
into this network.

Higher tariff:  Industrial subscribers would be asked to pay a higher tariff
for this facility, said the Minister while inaugurating the additional
capacity of the Mambalam-II Cross-Bar Telephone Exchange.  The installation
of the new equipment, imported from Japan, has doubled the number of lines at
the Mambalam Exchange from 5,000 to 10,000.

The Minister said that there were very important plans for further development
and modernisation of the telephone system in Madras during the remaining
period of the Seventh Plan.  "It is planned to commission an additional 1,200
lines in the St. Thomas Mount Exchange, 1,000 lines in the Chromepet Exchange
and 500 lines in the Avadi Exchange during the current year.  The telephone
exchanges at Ambattur, Nungambakkam and Flower Bazaar will be expanded by
2,000 lines, 10,000 lines and 5,500 lines respectively during the remaining
two years of the Seventh Plan.  And also new electronic exchanges of the
E-10B type with 10,000 lines capacity each will be opened at Harbour II,
Nungambakkam, Anna Nagar, Mandaiveli and Kodambakkam-II"

The Minister said that it was also proposed to replace the worn-out telephone
exchange equipment in the strowger exchanges at Anna Road, Central East-I,
Kilpauk and Mylapore.  For  improvement in the long distance trunk and
dialling services, there were ambitious plans for the expansion and moderni-
sation of the transmission system.  The Madras-Kanchipuram microwave link
would be commissioned during the year.  Work was under execution for

commissioning microwave schemes in eight routes in the next two years.  A
digital coaxial system between Madras and Tiruchi and a modern optical fibre
cable system connecting Tiruchi and Dindigul and Madurai would be put
through during 1988-89.

Telex services:  Telex services, he said, would also be expanded.  The
existing strowger type of telex exchange with 1,200 lines would be replaced
by a modern electronic telex with 1,700 lines during this year.  The other
electronic telex, which was of 1,500 lines capacity, would be expanded by
500 lines in 1988-89 and a further 600 lines during 1989-90.

Tamil Nadu had the highest number of stations provided with STD facilities.
Ramanathapuram and Cuddalore would be provided with the facility during the
Seventh Plan.

The Minister inaugurated the additional capacity of Mambalam-II exchange by
making the first call to Mrs. Vyjayanthimala Bali, MP, who was seated next
to him on the dais.

Pointing out the establishment of several new industrial units in the out-
skirts of the city.  Mrs. Bali suggested that exclusive telecommunication
facilities to benefit these units be taken up.  Possibly, the industries
themselves could be asked to finance such projects.

Mr. T. Thangabalu, Mr. K.R. Natarajan, and Mrs. Jayanthi Natarajan, MPs,
Mrs. D. Yasodha, MLA and Mr. M. Palaniyandi TNCC (I) President commended the
efforts of Madras Telephones in trying to give a better service for its
subscribers.  The districts which had not yet been provided with STD
facilities should be given the necessary connections soon, they said.

Mr. R. Rangarajan, General Manager of the Madras Telephones, welcoming the
Union Minister, said the additional capacity at the Mambalam exchange would
increase the number of lines in Madras from 1,36,800 to 1,41,800.

Mr. M. Viswanathan, Additional General Manager, Madras Telephones, proposed a
vote of thanks.

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CSO:  5550/0178

## BETTER TELECOMMUNICATIONS ENVISAGED IN SEVENTH PLAN

Madras THE HINDU in English 8 Jun 87 p 9

[Text]

NEW DELHI, June 7.

The Minister of State for Communications, Mr. Santosh Mohan Dev, told newsmen here today that the Telecommunications Department had drawn up elaborate plans for telecom facilities during the Seventh Five-Year Plan.

The salient features of the Plan, according to the Minister are: Manual telephone exchanges at all district headquarters. Those with a capacity of 400 lines and above will be automatised.

All district headquarters will be brought on the national subscribers dialing network, making available STD facilities with the respective State capitals.

Telex services to be expanded to make telex connections available on demand by the Plan end.

In all the four metro telephone districts (Delhi, Calcutta, Bombay and Madras) and major telephone districts (Bangalore, Kanpur, Ahmedabad, Pune and Hyderabad), the demand registered up to June 30, 1986 is likely to be cleared by the Plan end.

Similarly, in all the large exchanges with a capacity of 2,000 lines and above the registered demand would be met up to April 1, 1987. In medium size systems (between 200 to 2,000 lines), the demand registered up to April 1, 1988 would be met and in all small and rural telephone exchanges telephone would be available on demand by the Plan end.

In addition, 15,000 long distance public telephones in rural areas would be provided.

During the Seventh Plan, it is hoped to commission around nine lakh "E-10 B" type digital electronic equipment besides around 2,75,000 of analogue electronic equipment, including containerised exchanges.

The department will ensure that all growth in the long distance switching network would be through digital electronic equipment to the tune of around 1.2 lakh lines.

**Fibre optics:** Modern fibre optic and digital microwave media would also be utilised extensively. Over 5,000 km of fibre optic systems in the long distance network and over 500 km in local network and around 4,000 km of digital microwave systems besides several systems for the local network would be commissioned. About 800 km of ducts for cables would be put to improve the reliablity.

The Minister said a new high speed data network was being envisaged to establish computer communication, and modern service such as teletex (a high speed telex service), telefax, etc., were being inducted.

/9274
CSO:   5550/0172

## ACCESS CENTERS SELECTED FOR PLANNED DATA NETWORK

New Delhi PATRIOT in English 11 Jun 87 p 5

[Text]

Ranchi, June 10 (UNI) — Patna and Ranchi in Bihar have been selected as two of the 12 remote access facility centres in the country where the Department of Telecommunications would set up a data network "Viram Project", to be executed during the next three years.

The network using "packet switched" technology would have four major nodes one each at Delhi, Bombay, Calcutta and Madras and four minor ones at Bangalore, Pune, Ahmedabad and Hyderabad, official sources said here on Wednesday.

Besides Patna and Ranchi the other facility centres would be located at Baroda, Bhopal, Bhubaneswar, Chandigarh, Ernakulam, Jaipur, Varanasi, Nagpur, Trivandrum and Lucknow.

These stations will be connected with each other by high speed data links.

The sources said there has been a demand for reliable telecommunications network for both the business and industrial sectors.

The network would be based on suitable satellite circuits and digital switching equipment. The existing media with suitable inter-connection with the telecommunications network would also be used.

An inter-agency working group constituted to examine feasibility of the data network had submitted their report recently.

The group suggested setting up of a satellite-based low communication and message network, particularly to provide reliable data communication services to industries being set up in remote areas.

The group also proposed setting up of a combined voice and voice band data network as an overlay on the public switched telephone network. The new network would have provisions of being converted into full Integrated Services Digital Network (ISDN) with higher reliability through point to multi-point radio system to help solve last minute problems.

The sources said, for conservation of space segment and providing telecommunication services to a large number of remote stations with low traffic, a new plan has been finalised.

The new technique is called "Demand Assignment Multiple Access (DMA)". Import of equipment for bringing some existing earth stations on this scheme had also been initiated.

The Department of Telecommunication's segment comprises of 29 fixed earth stations including five main, eight primary and sixteen remote earth stations besides one road Transportable Communication Terminal (TRACT) and two Emergency Communication Terminals (ECT).

The sources said four groups comprising of 48 circuits were provided out of INSAT-1B capacity for dynamic changes in November 1986 between Agra-Bombay and Agra-Calcutta for commissioning of digital tax exchanges at Agra.

The sources said the scheme for introduction of International Subscriber Dialling (ISD) service from all stations connected to National Subscriber Dialling (NSD) has also been finalised.

The scheme is being introduced in a phased manner and 318 and 18 Indian cities on NSD network have already been provided with ISD facility.

About 99.5 per cent of India's external telecommunication traffic is operated through satellite submarine cable and the tropscatter media.

/9274
CSO: 5550/0174

## DIGITAL EXCHANGE BASED ON C-DOT TECHNOLOGY COMMISSIONED

Madras THE HINDU in English 1 Jun 87 p 7

[Text]

NEW DELHI, May 31.

The second Digital Rural Exchange based on C-DOT technology was commissioned yesterday at Churhat, a remote village in backward district of Sidhi, Madhya Pradesh.

The C-DOT 128 Port RAX replaces the existing 25 line MAX III type strowger exchange, facilitating eventual introduction of STD when a radio system connects Churhat to Rewa/Sidhi in the near future. Presently, it has manual trunk service over a single open wire trunk line to Sidhi, the district headquarter which itself is a manual exchange. The new exchange will improve the reliability of local service and will pave the way for placement of Churhat in the national STD grid.

The RAX, installed at Churhat, has been fabricated by ITI engineers as a consequence of memorandum of understanding (MOU) signed between C-DOT and ITI for setting up a Pilot Production Plant at Bangalore.

According to C-DOT it has wide scope for use not only in rural India but in all developing countries where similar environmental conditions exist. This was corroborated during Africa-Telecom'86 held at Nairobi last September by ITI and Kenya P & T corporation, where C-DOT 128 Port RAX attracted wide attention. A number of enquiries have since been received by C-DOT from developing countries for terms of technology transfer and marketing of C-DOT 128 Port RAX.

The first 128 Port RAX designed and developed by C-DOT was put into commercial field trial at Kittur (Karnataka) last July. The performance of this exchange was found satisfactory during the last one year. Specially during the last six months the system has been extremely stable.

Besides ITI, six firms mostly in joint sector have taken up manufacture of RAX based on C-DOT technology. Some of them have also taken manufacture of 128 line EPABX based on C-DOT technology. The investment required to set up the plant for manufacture of RAX is estimated at Rs. 10 lakhs.

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CSO: 5550/0166

BRIEFS

INDO-GDR COMMUNICATIONS PACT--India and the German Democratic Republic (GDR) on Thursday signed an agreement to expand bilateral cooperation in the field of postal and telecommunications services, reports UNI.    It was signed by Minister of Communicatons Arjun Singh and Mr Rudolph Schulze, his GDR counterpart.  The agreement envisages close cooperation in setting up stable and mutually beneficial telecommunication links between the two countries. The agreement provides for, among other things, transit facilities--both surface and air--to third countries.  Speaking on the occasion, Mr Singh briefly explained India's progress in modernising the telecommunication net-work and production of sophisticated equipments like the digital electronic telephone exchanges, microwave and coaxial systems as also the indigenously developed electronic switching systems.  The visiting minister earlier called on Mr Singh.  Both were understood to have discussed matters of interest to the two countries.  Mr Schulze, during his stay in India, visited the Hindustan Cables Ltd., Hyderabad and Indian Telephone Industries, Bangalore. He was impressed by the progress made by India in the cable making industry, use of high technology, and erection equipment.  [Text]  [New Delhi PATRIOT in English 29 May 87 p 5]  /9274

BORDER TELECOM FACILITIES--Jammu, 18 May (PTI)--Metka and Jugla villages of Kalakot and Mendhar tehsils of Rajouri and Poonch border districts were brought on the telecommunication map of the country with the opening of pub-lic call offices here yesterday, an official release said.  These public call offices were set up in connection with the celebration of the national tele-communication day.  With these, the total number of public call offices in these districts has gone up to 60.  Of these 39 public call offices are in Rajouri district and 21 in Poonch district, the release said.  In addition, work on installation of 300 lines and 25 lines automatic telephone exchanges is progressing at Rajouri and Budhal respectively.  These automatic telephone exchanges are likely to be completed before the end of July, this year. [Text]  [New Delhi PATRIOT in English 19 May 87 p 2]  /9274

RURAL AUTOMATIC EXCHANGES--New Delhi, 23 May--The Centre for Development of Telematics has begun transferring to manufacturers the technology for the 128 port Rural Automatic Exchange (RAX) developed by it.  RAX has been so designed that it can operate not only in the rural areas in this country but also in other developing countries, where similar environmental conditions exist. Already a number of developing and developed countries like Algeria, Kenya

and Canada are said to be making inquiries about the technology used, in the RAX. The system requires no air conditioning and can tolerate wide fluctuations in power supply. It has facilities for centralized maintenance testing and local metering and is ruggedized for transport over rough roads. Seven manufacturers, all from the public sector, have signed agreements with the centre for the RAX technology. These are: Keltron (Bihar), ITI (Palghat), TELCO (Orissa), Keltron (Kerala), PCL (Punjab), RIICO (Rajasthan). Two other State electronics development corporations—Uptron (UP) and Harthon (Haryana)—are likely to sign similar agreements shortly. RAX will cater economically for 24 to 80 subscriber lines and eight to 24 trunk lines. The production cost of the system with 80 subscriber lines will be approximately RS 2,000 per line, which is much less than that of the imported RAX. The demand for this type of RAX is expected to be about 100,000 lines per year in the Seventh Plan. The first RAX, which was installed at Jittur in Karnataka in 1986, is functioning satisfactorily. [Text] [Calcutta THE STATESMAN in English 24 May 87 p 10] /9274

SMALL EXCHANGE POLICY—New Delhi, 18 May—The Department of Telecommunications has decided to permit opening of small telephone exchanges on the basis of minimum demand without insisting on the condition of a minimum revenue. This marks a change in policy hitherto pursued which permitted opening of small telephone exchanges only on condition of a minimum revenue. For exchanges of nine lines or 25 lines the minimum demand should be five and ten telephone connections respectively and the minimum revenue should be 35 percent and 40 percent respectively of the anticipated annual recurring expenditure. For exchanges of 50 lines and 100 lines capacity the minimum demand should be 23 and 46 respectively and minimum revenue should be 60 percent and 70 percent respectively of the annual recurring expenditure. The condition regarding minimum revenue has now been removed. These measures are part of the policy to improve communication facilities in rural, backward, tribal, and hilly areas. Having covered tahsil, sub tahsil and block headquarters it has now been decided to provide a public telephone within five km of every village. The plan is to provide a public telephone on fully subsidised basis at one principal village in every inhabited geographical area bounded by a hexagon of five km sides. It has also been decided that all long-distance public telephones should work for a minimum eight hours. [Text] [Madras THE HINDU in English 19 May 87 p 11] /9274

TECHNOLOGY TRANSFER PACT—New Delhi, 22 Jun—The Indian Telephone Industries (ITI) has entered into an agreement for transfer of technology for manufacturing digital coaxial line systems with AT and T and Philips Telecommunications (APT) of Holland involving high-tech aspects, such as SMD (surface mounted devices) technology. The ITI is setting up facilities to productionise the digital coaxial equipment with an investment of Rs 3.5 crores for an annual manufacturing capacity of 30 terminals and 230 repeaters for a turnover of approximately Rs 22 crores during the Seventh and Eight Plans. The 34 and 140 MB/S system to be productionised, can respectively carry 480 and 1920 voice channels simultaneously. Being digital, these are immune to interference and noise on the line, resulting in high quality voice channels. India entered the era of digital coax by ordering 140 MB/S digital coaxial line equipment and digital multiplex equipment in 1985. During 1986, the first 140 MB/S Digital coaxial system was successfully installed on the Muzaffarnagar-Meerut route on a trial basis. Other routes with 140 MB/S digital coaxial systems totalling 750 route km are Ahmedabad-Surendranagar-Rajkot: Ambala-Ludhiana-Amritsar, and Bombay City. [Text] [Madras THE HINDU in English 23 Jun 87 p 7] /9274

STD TO SWITZERLAND--Bombay, 6 Jul--The international subscriber-dialled
telephone service to Switzerland was inaugurated today at Videsh Sanchar
Bhavan by the minister of state for communications, Mr Santosh Mohan Dev,
through an inaugural call to the Swiss federal councilor councillor for
transport, communication and energy, Dr Lwon Schlumph, in Berne.  [as pub-
lished]  The service will assist about 650 Swiss collaborators in India,
according to the Swiss counsul-general, Mr Bernaerd Sandoz.  [Text]
[Bombay THE TIMES OF INDIA in English 7 Jul 87 p 4]  /9274

CSO:  5550/0179

NEW WEST TEHRAN TELEPHONE CENTER BECOMES OPERATIONAL

Tehran ETTELA'AT in Persian 1 Jun 87 P 4

[Text]  Social Service--The spokesman of Iran Communications Company announced:
In order to secure the communications needs of the Qods minicity [west of Tehran],
installation of technical equipment for a 10,000-unit telephone center has been
started.

In conjunction with this measure, for the purpose of expanding the communication
umbrella of our dear city inhabitants, the installation operations for several
six- and seven-digit telephone centers have also begun in Tehran.

The said spokesman further added:  In the region of Qods minicity, the necessary
steps will be taken shortly to assign 200 telephone numbers to those individuals
who had applied and received their permit by 1355 [21 March 1976 - 20 March
1978], before the 10,000-unit telephone center becomes operational.

He also stated:  So as to prevent further financial pressure on the subscribers,
certain measures are being considered whereby some extraneous telephone-related
charges will be eliminated.  As a result of such a research it will be possible—
simultaneously with the operation of the 10,000-unit telephone center of Qods
minicity--to eliminate any additional telephone-related charges which would apply
to the area beyond the borders of the said region.

According to this report a number of applicants for telephone in the minicity
of Qods are physicians and other inhabitants who had applied for and received
their permit before.  After the installation of the 1200-pair cable in the re-
gion of Qods minicity, it has become feasible to assign 200 new telephone numbers
to the said applicants.  Likewise, when the 10,000-unit telephone center of
Qods minicity becomes operational, the needs of the telephone applicants of the
said area will be gradually met.

12719
CSO:  5500/4722

ALIABAD-E KATUL TELEPHONE CENTER INAUGURATED

Tehran JOMHURI-YE ESLAMI in Persian 14 Jun 87 P 4

[Text] Aliabad-e Katul--JOMHURI-YE ESLAMI correspondent: In a special ceremony in the presence of engineer Gharazi, minister of post, telegraph and telephone, Hojjat ol-Eslam Hosseini and Alavi, Majlis respresentatives from the cities of Aliabad-e Katul and Gorgan, director general of communications of the Mazandaran Province and governor of the said province, the 2500-unit telephone center of Aliabad-e Katul was inaugurated.

According to our correspondent during the opening ceremonies of this center, engineer Gharazi joined other executive officials of the city and the Hezbollah people and in a speech regarding the magnificence of the revolution and its influence on the oppressed nations of the world stated: Today our enemies are trying to belittle the revolution and somehow minimize the magnificence of the Islamic revolution. In continuation he added: Those who are constantly trying to belittle the revolution--particularly with a view to the very principal pioneers of it, namely the imam and the nation--ought to know that this revolution has shaken the roots of the arrogant governments throughout the world and if it were not for your resistance in the war fronts, other countries and nations would not stand up to the world arrogants.

In conclusion, he presented an operational report of the said ministry, both before and after the advent of the revolution, and the inauguration of communication centers in 3,000 villages, etc.

According to the same report, this center occupies 2200 square meters of land with 600 square meters occupied by building alone. This center was constructed and put into operation by domestic specialists. Hereafter, all our countrymen can establish telephone contact with Aliabad township by dialing area code 02752. Here it should be mentioned that this center can be expanded to 5000-unit in the future, of which 2500 telephone numbers are in operation now.

12719
CSO: 5500/4722

BRIEFS

KHAN MIRZA SATELLITE STATION--The Central News Unit reports that on the occasion of the auspicious birthday of Imam 'Ali, the 5-watt satellite station in Esfahan's Khan Mirza area has become operationa, enabling residents in more than 30 villages in the region to watch television programs on channel 11. [Text]   [Tehran Domestic Service in Persian 0430 GMT 10 Jul 87 NC]   /9738

TV RELAY FOR SA'IN DEZH--According to a Central News Unit report, the television relay station of Sa'in Dezh became operational today and the inhabitants of this district were able to enjoy the programs of the Islamic Republic of Iran television's second network.  The Sa'in Dezh relay is 10-watts strong, and strengthens the second network programs of the Islamic Republic of Iran's television throughout the Sa'in Dezh region.  All the building and operational stages of this television booster have been carried out by the television transmitter repair and maintenance unit of the Voice and Vision of the Islamic Republic of Iran, Orumiyeh Center.  [Text]   [Tehran Domestic Service in Persian 1630 GMT 7 Jul 87 LD]   /9738

CSO:   5500/4724

TNC 'TELEPHONE WAR' ON TELECOMMUNICATIONS MARKET

Moscow PRAVDA in Russian 6 May 87 p 5

[Commentary by Vladimir Bolshakov under "Commentator's Column" rubric: "'Telephone War'"]

[Text]  Paris--The continuing sale of state enterprises in France has produced a sharp intensification of the "telephone war," which has now been going on for several years between the largest transnational companies in the world telecommunications market.

On 30 April, the Companie Generale de Construction Telefonique (CGCT), one of the largest French producers of automatic telephone stations, will be taken over by the French-Swedish concern Matra-Ericson and the French "concrete king" F. Buig.  Also expected soon is the denationalization of Companie Generale d' Electricite," which is in second place in the world among the telephone giants and first in Europe.

The battle of the foreign monopolies for CGCT has been under way for a long time.  Prior to being nationalized in 1982, it belonged to AT&T, the American "telephone octupus."  AT&T did not give up hope of regaining control over the French company.  But they rejected the candidacy of AT&T, preferring the French-Swedish firm, in which the French military concern Matra plays a leading role.

This evoked a storm of indignation in the United States.  The American ambassador in Paris came right out and said that the United States will view the French decision as an indication that the European telecommunications market is closed for American suppliers.  The ambassador stressed that this will undermine President Reagan's efforts in resisting the pressure of the "supporters of protectionism in the United States."  As reported from the United States, the Congress has already prepared a bill for the corresponding law that will sharply increase the duties on the output of telecommunications firms exported to the United States from the "Common Market" countries.

Dissatisfaction with the decision of the French Government was also expressed in the FRG, where the firm Siemens A.G. sought joint ownership of CGCT, as well as in the Netherlands, "offended" on behalf of Philips, once a partner of AT&T and also not allowed a share of the pie.  Local newspapers are reporting

on the possibility that the dissatisfied competitors will instigate legal
proceedings and carry out other actions.

The exacerbation of the antagonism of the transnational companies caused
French Minister of Economy E. Balladur to make a statement to the effect that
"France is still an independent state" and that the "countries that are also
devoted to freedom" must understand it.  But where the interest of the largest
concerns in easy profit is paramount, it is clearly not a matter of "freedom,"
even bourgeois freedom, and not a matter of respect for the sovereignty of
others.  And the new flareup of the "telephone war" makes this very clear.

9746
CSO:  5200/1041

EC COMMISSION ON EUROPEAN TELECOMMUNICATIONS MARKET

Munich SUEDDEUTSCHE ZEITUNG in German 12 Jun 87 p 24

[Article by lu., Brussels:  "EC Puts up Postal Monopoly for Discussion;
Narjes Regards Open Telecommunications Market as Indispensable"]

[Text]  An open market for telecommunications services and equipment is a
necessary component of the common internal market that the EC wants to
create by 1992.  This statement was made by the German vice president of
the EC commission, Karl-Heinz Narjes, when a Green Book on this topic was
submitted.  If the member states do not mutually coordinate their plans
for the reorganization of the telecommunications system, this will lead
to hopeless fragmentation and will endanger the goal of the free European
internal market, according to Narjes.

With its policy paper the commission wants to start a broad discussion.
The first political discussion in the council of ministers is to take
place in October.  By the end of the year the commission then plans to
submit concrete drafts for binding decisions.

Technical developments have introduced changes in telecommunications
which, in the opinion of the commission, no country and no enterprise can
avoid.  Thus it can be expected that by the year 2000 as many as 60
percent of the jobs will be affected by telecommunication.  Moreover
enormous investments lie ahead.  According to the policy paper, Japan and
the United States have already reacted to that by a regulatory
reorganization.  Many EC states have the same idea.  Therefore it is high
time to establish a common framework for these considerations.

Against Suppliers Solely Based on Nationalist Factors

"If Europe wants to assume the role befitting it in this new worldwide
challenge, it is," according to Narjes, "out of the question that the
entire organization of this sector can be left to the existing national
postal monopolies."  The EC must therefore become active in two
directions:  It  must give the market a uniform dimension and at
the same time exert efforts towards uniform structuring.  The EC
authority therefore proposes "a gradual transition towards a competition-

oriented open market," which is to create for European industry a basis for the competition with the U.S. and Japanese competitors.

It is a further aim to make the numerous new telecommunications services available to the users at the most favorable terms and the lowest costs. In the opinion of Narjes, the aimed-for gradual opening of the market provides European industry with a "fair chance" to hold its own. Since the present public procurement process constitutes a sealed-off system with national "preferred suppliers," the enterprises need time to adjust themselves to the larger common market.

The EC vice president emphasized that the preliminary talks with the participants of the member states did not reveal any fundamental objections to the submitted orientation outline. However, this does not exclude lively discussions on details.

The EC commission starts out from the following guidelines in the Green Book on the most important points of which SUEDDEUTSCHE ZEITING of 10 June already reported:

--The telecommunications administrations can be granted a monopoly or special privileges in the operation and provision of the network infrastructure. The same applies to the provision of a limited number of basic services to the extent that they are essential for the official mission of the postal service. At present only the telephone service is to be considered in this respect. The choice of the "reserved" services must be restrictive. For all other services free competition or free access must be guaranteed.

--To make EC-wide operation possible, norms for the network infrastructure and services must be established.

--The conditions which are laid down by the telecommunications administrations for the use of the network by competing suppliers are to be established on EC level. In this connection agreement must be achieved on norms, frequencies, and principles of tolls.

--A free market or competition within and among member states must be established for terminals. Telecommunications administrations should also participate in this competition. For a transition period the provision of the first telephone instrument (which thus would be reserved for the postal service) could be exempted from the free market.

--The tasks relating to the state and the commercial-operational tasks of the telecommunications administrations must be separated. The sovereign duties include, e.g., the assignment of frequencies, control of equipment licensing or supervision of the conditions of use for the networks.

--The entrepreneurial (commercial) activities of the telecommunications administrations must be strictly examined according to the EC treaty. That especially applies to possible cross subsidies.

--All private suppliers of telecommunications services must also be regularly checked to prevent misuse of monopolistic positions.

--The common EC trade policy must be applied to the telecommunications system. In this connection, among other things a joint position for the GATT negotiations and the relations to third countries is to be developed.

12356
CSO:   5500/2527

EUROPEAN VIEWS ON PROPOSED HDTV STANDARDS

Paris ELECTRONIQUE ACTUALITES ECONOMIE & FINANCES (Supplement to ELECTRONIQUE ACTUALITES No 875) in French Apr 87 pp 22-27, 38

[Article by Michel Jaeger: "The HDTV Battle"; first paragraph is ELECTRONIQUE ACTUALITES introduction]

[Excerpts] This ambitious technological program is a worldwide battleground on which the European bloc confronts the Japanese-American coalition.  The Japanese want to impose a new technology; the Americans want to retain mastery of image programs; and the Europeans want to maintain their position in the television market.  Beyond HDTV, this confrontation extends to the audio-visual, telecommunications, data processing, and service fields.  At the moment the Europeans have the advantage.  Will they keep it?

Low Definition Has Had Its Day

To review the various elements in the record:

To begin with, one established fact is that video pictures, whether they use the SECAM, PAL, or NTSC [National Television System Committee], are low definition--that is, relatively imprecise.  Their possibilities are limited by the very standard initially adopted: 625 lines (and about the same number of points or pixels per line).  Further improvement in their picture quality is hardly possible, and they do not permit transition to a larger screen size, for their defects would then be glaringly apparent.  That system is now at a dead end.  What, then, is to be done?

Some 15 years ago the management of Nippon Hoso Kai (NHK), the largest Japanese broadcasting company, were already asking that question--all the more keenly since NTSC, the American color television system also used in Japan, is marked by mediocre picture quality clearly inferior to that of SECAM or PAL.

Starting from NTSC, which as we know operates on 525 lines at 60 Hz, they developed over the years a television system which doubles that definition by increasing it to 1,125 lines/60 Hz.  This new production standard provides a clearly improved picture and allows for a much larger screen size-- up to 1 m by 70 cm.

71

Moreover, as an answer to problems posed by televising from satellites, the Japanese have developed--concurrently with the HDTV standard--a transmission standard known as MUSE (Multiple Sub-Nyquist Sampling Encoding), which allows image transmission by signal compression within the limits of the 8 MHz transmission band.

Controlling both the production and the transmission standard, NHK has convinced major manufacturers (Matsushita, Sony, Hitachi, Toshiba) to produce the experimental equipment items necessary in the fields of production, transmission, and reception.

Those equipment items, after lengthy testing, have been shown during the past few years on various occasions, particularly at the major Tsukuba scientific and technical exposition in 1985. There could be seen giant 83 by 49 cm screens with a definition of 1.6 million pixels--5 times more than the conventional 625-line screen.

Then in 1985, having convinced the Americans--and particularly the major television firm CBS--to join them in that step, they presented to the CCIR (International Consultative Committee for Radio Broadcasting) a project for future recommendation of a single worldwide HDTV standard: their own.

The Europeans, who until then had hardly concerned themselves with what they considered utopian exercises, now woke up. A working group including manufacturers, broadcasters, and PTT administrators labored nonstop through the second half of 1985 to draft a document intended for the various European authorities. It was finally adopted by the Commission for European Communities on 17 March 1986.

In May, at its quadrennial plenary meeting in Dubrovnik, Yugoslavia, the CCIR decided to postpone its response. It granted the Europeans a 2-year deadline to offer a valid alternative to the system proposed by the Japanese.

By 30 June the Eureka program was launched, with the aim of defining a complete 50 Hz compatible HDTV system with its corresponding equipment items.

It is directed by the four major European industrial groups (Philips, Thomson, Bosch, Thorn & EMI), with Philips in the leading role. It combines some 40 laboratories belonging to very diverse organizations. Among the participants are found the major broadcasting organizations (BBC, Joint Center for Television and Telecommunications Studies/French Television, UK Independent Broadcasting Authority, Italian Radio-Television), almost all studio equipment makers, and the principal telecommunications administrations. Europe thus presents a common front.

Research programs conducted within the Eureka framework, and approved by the 19 member countries in the program, are complemented by certain activities under the RACE program for telecommunications research.

Thus the movement is underway, but no time must be lost. Future meetings of CCIR's Committee 11, responsible for following the progress of the projects, are set: September of each year is the time for taking stock. The next plenary session will meet in May 1990, when definitive action, in principle, is to be taken.

Philips has already presented, in a technical demonstration at Brighton in September 1986, a MAC compatible HDTV system. It can be considered the starting point for future European HDTV standards. Its development will be carried out within the framework of the Eureka program. Standards will be defined for a complete TV system from broadcasting studios to household receivers. The program will be accomplished in three phases so as to allow for a smooth transition from the conventional 625-line TV standard to direct satellite transmission linked to the MAC standard.

Let us now return to the confrontation with the Japanese, and note the objections and criticisms made by the Europeans against the system proposed by the former in Dubrovnik.

European Criticisms of Japanese Project

The NHK system is faulted as premature, inequitable, and technically out of date:

Premature because experimentation is still incomplete and production costs are still too high. In terms of transmission, moreover, there are manifest problems: transmission techniques made necessary by crowded airwaves have not yet been mastered. The Japanese-American NHK-CBS system requires a 30 MHz band width, and the proposed MUSE signal compression solution, which consists of diffusing each picture in four successive transmissions to reduce the necessary channel width to 8 MHz, is far from proven;

Inequitable from the industrial standpoint because a production standard based solely on 60 MHz would unacceptably disadvantage countries with a 50 MHz standard, which account for three fourths of the world's population. The Japanese-American system would not allow gradual transition from present systems--particularly the MAC system--since they are incompatible with all 60 Hz broadcasting. In addition, the use of a 60 Hz standard in a 50 Hz environment would cause stubborn clutter problems;

Inappropriate from the technical and industrial standpoint, for the Japanese system was started before the worldwide agreement on the 4-2-2 standard concerning digital production adopted in 1982 by CCIR. Since it is wholly analogical, the Japanese system would run counter to development of digital products based on that standard. Moreover, a 60 Hz frequency corresponding to 30 pictures per second would make it difficult for the new television to attain compatibility with existing film standards of 24 pictures per second.

Finally, the NHK system would be totally incompatible with the existing worldwide inventory of television equipment in use by the public at large. It would thus entail an abrupt change of equipment and materiel.

The Europeans are clearly not prepared to consider such an eventuality. Despite penetration by Japanese and other Southeast Asian producers, the European market, which absorbed 14 million sets in 1985, still depends for more than half of its supply on Old World firms. That is not the case for the American market, which has passed almost entirely into the hands of Japanese manufacturers.

Europe is Banking on Compatibility and Continuity

The European position starts from the accepted principle that television must evolve, but in such a way as to assure complete compatibility. This means that for several years to come viewers must still be able to receive the new high-definition pictures with their old low-definition sets.

[Box, p 23]

Table 1. EEC Domestic Market for Television Sets (10 Countries) in Thousands of Units

| Item | 1985 | 1986 | 1985-1986 |
|------|------|------|-----------|
| Color television sets | 11,886 | 13,200 | 11 % rise |
| Portion imported from Japan | 700 | ------ | --------- |
| Portion imported from South Korea 1/ | 85 | | |
| Portion of European-manufactured components | 93 % | | |
| Videotape recorders | 4,889 | 5,850 | 20 % rise |
| Color cameras | 167 | 110 | 34 % drop |
| Camera scopes | 254 | 450 | 77 % rise |

1/ Includes Japanese color television sets manufactured in Europe, particularly in Britain.

Source: Economics and Statistics Advisory Committee (ESAC) of European Association of Consumer Electronics Manufacturers (EACEM).

[Box, p 27]

Advantages of D2-MAC Packets Standard

Its principal virtue is compatibility, thanks to peritelevision shooting, but it offers in addition:

An enlarged definition, for the entire width of the channel is occupied by the picture;

A horizontal definition twice greater than that of PAL or Secam, limited today by the cathode ray tube;

Greater possibilities for several high fidelity sound channels, either multi-phonic or multilingual;

Elimination of defects linked to partial mixing of chrominance and luminance signals;

The possibility of modifying picture format (3 x 5.33); and especially, the allowance made for the characteristics of the worldwide numerical production standard known as "4-2-2" (CCIR 1982), by which it is inspired.

The future D2-MAC Packets system, to be utilized by France and more generally by European countries, will thus permit broadcasting of a very high quality picture without jeopardizing already established bases for major world television networks.

(Source: Simavelec)

6145
CSO: 5500/2497

GOVERNMENT MAKES DECISION ON 'CONTRACT OF CENTURY'

Measures Taken

Brussels LE SOIR in French 20/21 Jun 87 pp 1,8

[Article by Guy Duplat: "Martens Has Finally Decided: RTT Contract Economical and Low Price for Consumer"]

[Text]  The Martens VI administration has demonstrated that it is still capable of making decisions. It has just released the impressive train of upper level civil servant nominations. Details can be read below. But, especially and finally, it has made basic decisions on the RTT [Telegraph and Telephone Administration] contract of the century, that is to say orders of about 50 billion francs over 5 years. That dossier had been frozen for 2 years and the RTT, like the companies involved, found itself at the border of the abyss.

Hence, during a meeting Wednesday evening and Thursday morning the 11 ministers and secretaries of state in charge of the problem took the bull by the horns. The decisions were to be confirmed today by the Council of Ministers and then translated into specific contracts with the companies involved, following new negotiations still to be held and which could still produce surprises. In a way, Thursday's decisions are a mandate to negotiate.

General assessment:  the government has virtually no industrial support policy for telecommunication companies. It prefers to weigh heavily on the prices so that both the consumers and the economy may benefit from rate reductions. As for the French speakers, they have slightly improved their position, but they gain primarily from the drastic reduction of aid to the Flemish enterprises.

Before detailing the broad lines of this political agreement, it should be recalled that so far it is only temporary. The government first notes that it has done well in taking its time, if not dragging its feet, since thanks to the competition among suppliers it has obtained price reductions of 30 to 50 percent compared to the initial estimates, or gains which could amount to nearly 5 billion francs per year for the RTT.

With regard to the terminals, the government is liberalizing everything, including modems and mobile phones. But there are two exceptions: first for first telephones, which will remain an RTT monopoly for another 3 years, and first telex sets for 2 years.

That is good news for the French speakers, because those telephones are manufactured by Bell at Colfontaine, near Mons, and the telex sets are assembled by ACEC [Charleroi Electrical Engineering Shops]. These exceptions are justified by the need to ensure the reconversion of those enterprises and to set up beforehand a body which would be independent of the RTT and in charge of approving the terminals.

Telephone Exchanges

As for the telephone exchanges, the largest part of the package, the RTT will sign 5 year contracts with Bell and ATEA-Siemens. During the first 3 years, the former will have orders of 200,000 lines per year and the second of 100,000 lines. The two following years those orders will be reduced by 10 percent. The 30,000 lines thus freed will be allocated to the best candidate: Bell, ATEA-Siemens or Philips, the big loser in this decision. The government will negotiate these contracts beginning at a suggested price of 15,000 to 16,000 francs per line. This price is all inclusive, including research and development. Hence the ministers have abandoned the idea of special funds for research. It should be noted that in the previous contracts, Bell-Telephone's share was 80 percent and that it will now drop to 66 percent. As for the prices proposed by the government, they are two times less than the previous ones.

Cables and Transmissions

Concerning cables, Mrs D'Hondt will enter into negotiations with the four cable manufacturers (Dour, Fabricable, Eupen and CDC), all of them joined under the aegis of the Societe Generale, in order to obtain a 10 percent price reduction.

As far as transmission is concerned, one to one negotiations will be held on the basis of the proposed prices. The contracts will be short term and will never exceed 2 years. Philips would receive the largest share of the pie thanks to its prices and to compensate for its eviction from the exchange market (another compensation being considered would be to offer Philips the technological contracts for the sets). ACEC would get little except for the basic mobile phone stations following renegotiation of its prices.

Finally, in terms of supplies for the exchanges, renegotiations will take place with the candidates, but it seems a foregone conclusion that the Liege Gillam firm will get a significant share of that market, although it will have to share it with another supplier.

Commentator on Size

[Commentary by Guy Duplat:  "Small, Small..."]

[Text]  Even though nothing will be definite as long as all the contracts have
not been signed, several comments are essential.

1. Abandoned industrial policy. We are far removed from the ambitious plans
of Mr Davignon, of the Societe Generale, and of Mr Van Dyck of Bell-Telephone,
who were talking about 10 year agreements amounting to nearly 200 billion
francs. Henceforth, very low prices, much closer to the rates proposed on the
international market, will be imposed on the companies. The idea of creating
special research funds of several billion francs per year, which could have
been beneficial to the Walloons, is being abandoned.

2. Enterprises will be disappointed. Bell-Telephone, and its ally ACEC, are
getting much less than expected. Significant job losses will probably be
inevitable. This could once again mean a hard blow for ACEC, even if Mrs
D'Hondt only starts her negotiations in which she will try to obtain promises
of jobs and research. ATEA-Siemens will get a little more than before, but
like Bell it will suffer from the shock of low prices. Philips-AT&T has been
excluded from the exchange market. Even though there is talk of significant
compensations in terms of transmission and perhaps in the Postal Services and
the Ministry of National Defense, this new setback on the heels of the one
which occurred in France, could well sound the knell for the collaboration
between Philips and AT&T.

3. The French speakers do not have much more than they had before. They are
keeping their traditional sectors:  the cable manufacturers and, for a period
of 3 years, the telephone sets, but these sectors are technologically weak.
True, they stand to gain a share of the supplies, the base stations for mobile
phones and a few small orders, but apparently they are far from the demands of
the Walloon forces. In the end, the greatest gain for the French speakers lie
in the Flemish losses. Because henceforth they will have to pay much less to
indirectly subsidize Flemish industry through the RTT. Moreover, the French
speaking ministers also want to persuade Bell and Siemens-ATEA to increase
their research efforts in Wallonia. Let us stress that Philips is gaining a
great deal in Brussels through transmission contracts.

4. The consumer should be the winner. With the announced prices the RTT
should be able, over the next few years, to achieve very big profits on the
order of 10 to 20 billion francs per year. A manna which should logically
stay within the state owned company and be used specifically for substantial
rate reductions to the benefit of the consumers, and especially of the
enterprises. Unless the government were to take advantage of this gold mine
and pocket some of it to fill the budgetary hole. This money gained by the
RTT could also be used to help research in Wallonia.

8463
CSO:  5500/2530

AGENCY HEAD DESCRIBES PLANS FOR PRIVATIZING, MODERNIZING

Copenhagen BERLINGSKE TIDENDE in Danish 29 Jun 87 Sec III p 4

[Article by Jesper Elle:  "No Restrictions on Use of Telecommunications Network"; first paragraph is BERLINGSKE TIDENDE introduction]

[Text]  The cooperation between the Copenhagen Telephone Company [KTAS] and IBM on the "danNet" computer service company and Jutland Telephone's plans for a similar system do not mean the formation of new monopolies.  On the contrary they mean a liberalization, according to Hans Wurtzen, director general of the Post & Telegraph Agency [P & T].

Within 5 to 8 years there will be almost no restrictions on the ability of private firms to use the public Danish telecommunications network for telephone, telex and computer transmissions.

In recent years the private sector--especially the computer processing branch--has expressed a desire for a liberalization in the use of the telecommunications network.  A liberalization that would allow private firms to freely offer computer services via the public telecommunications network.

A joint subsidiary set up by the concessionary telephone company, KTAS, and the Danish subsidiary of IBM, the American computer giant, has caused concern in the electronics and computer processing branch which sees the new company--named "danNet"--as the beginning of a new monopoly.

The concern has not been lessened by Jutland Telephone's announcement in BERLINGSKE TIDENDE in the middle of last week that it intends to compete with KTAS and form a similar company of its own.

"However 'danNet' will not have a monopoly on anything," said Hans Wurtzen, P & T's director general.

"The 'danNet' company will have exactly the same opportunities as any other computer office and the doubts that might be created by the fact that KTAS is involved in the matter have been eliminated by the very precise rules that have been set up on how to separate the activity of the new company from the services offered by KTAS.

"To put it simply, the rules are intended to protect telephone subscribers' money while at the same time ensuring that 'danNet,' as a KTAS customer, is not put in a preferential position," the director general added.

The problem is the concept of "third-party traffic."

In concrete terms this means that a private computer service using the public network to serve its customers with the help of so-called "fixed circuits" must not act like a telephone company in relation to these customers.

There is no question of a liberalization in this area at present. And liberalization will depend on a suitable harmonizing of rates for fixed circuits and connected systems. In other words these systems will cost more.

"Fixed circuits are currently allowed to transmit only data pertaining to the subscriber's own affairs. Thus transmission or reception of traffic from a third party is not permitted," said Hans Wurtzen.

"However the restrictions have been administered very liberally. In all cases where it could be shown that the public network did not have the desired facilities, dispensation has been given for third-party traffic. In other cases permission has been granted because the firms in question use computer processing equipment that is not set up to handle traffic via the public connected system."

P & T is now in the process of establishing some clear principles so that freedom of action is not dependent on dispensations in individual cases.

The fixed circuits can continue to be used for internal company traffic and traffic to another connected user or division.

But conveying third-party traffic that resembles similar telephone company activities will still be prohibited in the future, even if a general liberalization is on the way.

However it is expected that in the future private companies will be able to offer any supplemental service--freely and without getting special permission--as long as public connected systems are used exclusively in this service. Presumably leased circuits can also be used freely for this purpose.

In reality this means unrestricted use of telephone, telex and computer networks.

Higher Rates

"It is a long-term goal, which means within 5 to 8 years, to have as few restrictions in the telecommunications network as possible. This means aiming at the elimination of all restrictions connected with the use of fixed circuits. This includes being able to link connected systems and fixed circuits," said Hans Wurtzen.

But completely free use of the telecommunications network will not be a reality before a number of important conditions are met. One of the most important involves rates.

"In order to implement the long-term goal rates and ratesetting principles for connected systems and fixed circuits must be harmonized.

"We assume that a change in the rate structure will occur gradually and this will involve a relative increase in the cost of fixed circuits, among other things. This will reduce the rate incentive for the resale of fixed circuit transmission capacity and perhaps eliminate it altogether.

Important Resource

These rate changes are not intended to increase the earnings of telecommunications firms, the director general pointed out.

"Therefore it is assumed that the excess income will be used to lower the cost of public connected systems. The telecommunications network structure is such an important resource for Denmark that it is hard to find any reasonable justification for dividing up the tasks involved in planning, setting up and operating the basic network and services into several units within the same geographic area," said Hans Wurtzen.

"Thus telecommunications companies will continue to have an obligation to keep up with the estimated need when it comes to establishing services and facilities--which are made available to the public on equal terms. If some of the telecommunications firms choose to offer services as part of their competitive activity, as is the case with 'danNet,' for example, they still have an obligation to incorporate these services as part of the public network as the need arises."

Denmark Cheapest

Other conditions for a liberalization of the use of the telecommunications network are that it must be balanced against international development in the area and that the Danish contribution must be competitive.

"Danish telecommunications rates must remain at a level that makes us a cheap country for telecommunications. A study made by FINANCIAL TIMES showed that Denmark has the lowest telecommunications rates in Europe based on telecommunications costs for a multinational company with an average distribution of traffic among local, national inter-European and transatlantic traffic. The study also showed that Denmark has the second lowest rates for fixed international circuits--surpassed only by England," said Hans Wurtzen.

"If we ensure a liberal use of the telecommunications network and preserve Denmark's position as a cheap telecommunications country, it could make an important contribution to the ability of the Danish business sector to maintain and improve its international competitiveness."

6578
CSO:  5500/2531

SPD FAVORS CONTINUED BUNDESPOST NETWORK MONOPOLY

Duesseldorf HANDELSBLATT in German 26 Jun  87 p 3

[Article by Rainer Nahrendorf: "Telecommunications.  SPD For More Competition
While Maintaining Network Monopoly.  Glotz:  A Position Cast in Concrete Would
Take All Opportunity for Competition Away from Bundespost"]

[Text]  Bonn, 25 Jun--Peter Glotz, SPD deputy to the Bundestag and his party's
coordinator for media policy, in an interview with HANDELSBLATT has spoken out
in favor of unconditionally maintaining the Bundespost monopoly as the network
provider  but  at  the  same  time in favor of competition with respect to new
services and in the area of terminal equipment.

Glotz pointed out that already today constraints have been placed on the
Bundespost  monopoly.   Even  though there is still a monopoly with respect to
telephone service, it no longer exists with  respect  to  data  services.   At
present  the  Bundespost  receives 92 percent of its income from the telephone
and only 8 percent from other services.  As early as 1990, however, a ratio of
60 to 40 is predicted.   This also shows that  the  Bundespost  monopoly  will
break itself up step by step.

A  Bundespost  monopoly in all areas of telecommunications would also scarcely
conform to the view of the EC, as indicated in a white paper prepared  by  the
EC commission.

Major Investments in the Infrastructure

Certainly  the Bundespost must keep its monopoly of the network in order to be
able to  finance  the  decades  worth  of  huge  investments  needed  for  the
information  technology  pathways  of  the  future (ISDN = integrated services
digital network).

No private company would be able to guarantee these huge investments.   In the
case  of  services  and  terminal  equipment, however, competition ought to be
allowed.   And of course the Bundespost must be able to  participate  in  this
competition totally and without limitation.

Glotz warned companies about passing up the opportunity, in return for perhaps
somewhat  cheaper  communications  fees,  for  a  large public company to make

long-term investments which need not be amortized within just a few years. It is assumed that by 1990 in addition to the 28 million telephone subscribers already in existence there will be about three million ISDN connection points suitable for several types of terminal equipment.

This would be a great investment opportunity for industry as well as for exporters if efforts toward international standardization are able to proceed rapidly. The opportunity for an investment incentive--which will improve competitive and employment opportunities and which is feasible in the medium term--through new services and competition in the terminal equipment sector should not be missed.

Cross-Subsidies Should Remain

Glotz pointed out that in both America and Great Britain the process of deregulation involved bad experiences. Also unfavorable to complete deregulation of the entire Bundespost sector is the fact that the postal sector, which is in the red but whose high standard of performance must be maintained, needs to be supported by the telecommunications sector, primarily the telephone sector, which is in the black.

The principle of global coverage must also be retained in the future because otherwise either the minister of finance would have to make up the post office deficit or the quality of postal services would have to be lowered. However, no reasonable politician would find it acceptable that a package to Norderney would cost DM 25 or that letters to a mountain village could no longer be delivered at all. For purely fiscal reasons, diversion of telephone profits into the coffers of private companies is also not feasible.

However, Glotz did favor allowing competition in the sectors of terminal equipment and telecommunications services. Enhanced services which could provide interesting, intelligent new levels of performance would be needed. In order to be able to operate more flexibly and in line with market conditions, the postal service would have to be freed of bureaucratic rulings agreed upon with other ministries regarding the introduction of new services.

In order to do this the SPD would also be prepared to accept a separation between sovereign duties--which would have to remain within a functional ministry for postal and telecommunications services--and entrepreneurial duties. The entrepreneurial duties of the Bundespost within the telecommunications sector could be assumed by a newly founded company, "Telecom," which like the federal German railroad would be headed by a board of directors. The sovereign duties on the other hand would be assumed by a Ministry for Postal and Telecommunications Services.

Mail service should also remain within this ministry in order ensure the unity of postal and telecommunications services. The social democrats are also of the opinion that profits from telecommunications services should continue to be applied against the deficits of the mail service not only to safeguard jobs in the postal service but also to ensure that the Bundespost provides an equal level of services to all FRG citizens.

In the opinion of Glotz there is a clear conflict within the coalition. The free democrats are totally committed to the American and English course of deregulation, while the basic position taken by the CSU at least is to work toward reform but leave the network monopoly of the Bundespost in place.

According to statements by the FRG government, the necessary executive orders, and if necessary changes in the law, will be implemented in 1988. Still open to debate, however, is whether this effort will succeed in view of the already existing conflict within the coalition. But something must be done as quickly as possible in order for the Bundespost to adapt to new technical developments. Otherwise the the FRG could fall behind in terms of international competition, as well as relinquishing all chance of achieving standardization.

Doing Nothing Would More Likely Weaken the Bundespost

In explaining the SPD position, arrived at following controversial, party-internal discussions, Glotz said, "Anyone who today takes a position cast in concrete that 'the Bundespost shall remain the Bundespost' would little by little take away all opportunity for the Bundespost to compete."

Even today, he went on, the Bundespost is affected by non-entrepreneurial influences--encumbered by a ball and chain in the terminal equipment sector, for example--which diminish its chances. The surest way to weaken the Bundespost and jeopardize jobs there would be to do absolutely nothing and simply sit and wait.

Glotz presented his position in March at a meeting of the board of directors of the German postal workers union. His view was met both with favor and disfavor. In his estimation the debate will also continue to move forward in the German postal workers union.

# Öffentliche Telekommunikationsnetze
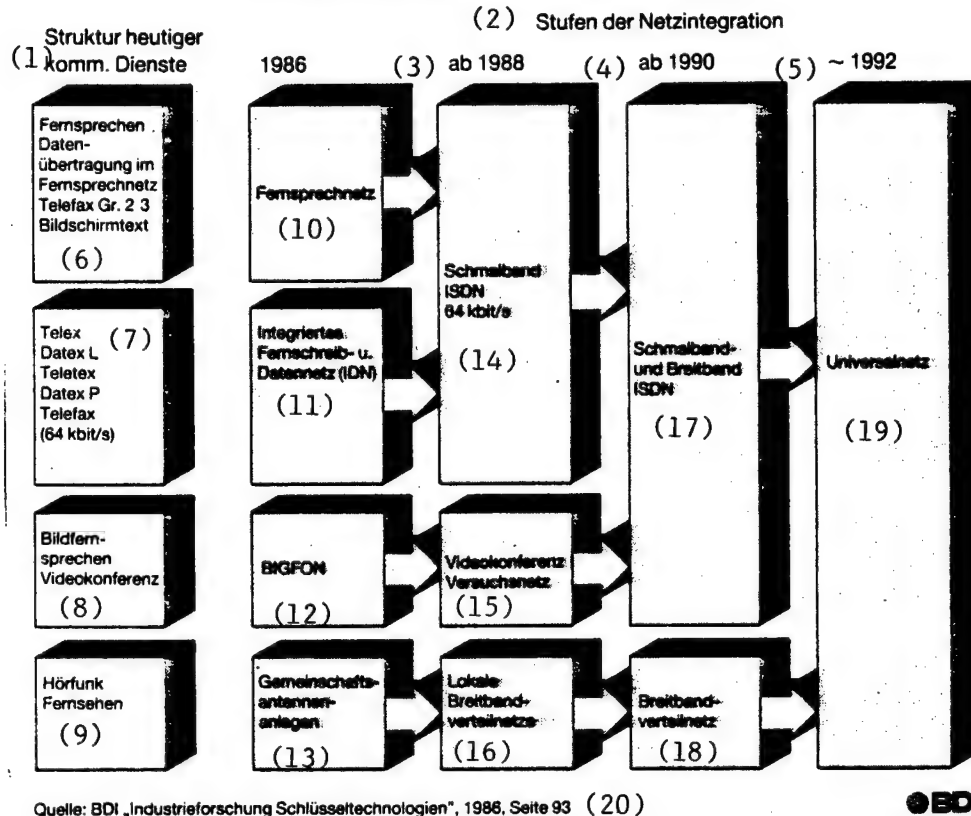## Entwicklungsplan der DBP

(2) Stufen der Netzintegration

Struktur heutiger
(1) komm. Dienste

1986    (3) ab 1988    (4) ab 1990    (5) ~1992

Fernsprechen
Daten-
übertragung im
Fernsprechnetz
Telefax Gr. 2 3
Bildschirmtext
(6)

Fernsprechnetz
(10)

Schmalband
ISDN
64 kbit/s
(14)

Telex    (7)
Datex L
Teletex
Datex P
Telefax
(64 kbit/s)

Integriertes
Fernschreib- u.
Datennetz (IDN)
(11)

Schmalband-
und Breitband
ISDN
(17)

Universalnetz
(19)

Bildfern-
sprechen
Videokonferenz
(8)

BIGFON
(12)

Videokonferenz
Versuchsnetz
(15)

Hörfunk
Fernsehen
(9)

Gemeinschafts-
antennen-
anlagen
(13)

Lokale
Breitband-
verteilnetze
(16)

Breitband-
verteilnetz
(18)

Quelle: BDI „Industrieforschung Schlüsseltechnologien", 1986, Seite 93  (20)

●BDI

Fig. 1   Public Telecommunications Networks.
         Development Plan of the Bundespost

CAPTION

The strategy of the Bundespost to integrate, in the initial   phase,   currently
available   narrow   band   voice,   text   and data communications services into a
digital   network   (ISDN)   and   to     construct     this     network     quickly     and
systematically,   according   to   the BDI corresponds to the recognized needs of
commercial suppliers.   However, the optimum conditions will only be created by
a broadband network using fiberoptic technology.

[Key on next page]

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Key:
1. Current structure of communication services
2. Steps toward network integration
3. as of 1988
4. as of 1990
5. circa 1992
6. Telephone, data transmission within telephone network, telefax groups 2 & 3, interactive videotex
7. Telex, Datex L, Teletex, Datex P, telefax (64 kbps)
8. Video-phone, video conferencing
9. Radio, TV
10. Telephone network
11. Integrated telex and data network (IDN)
12. BIGFON
13. Community antenna systems
14. Narrow band ISDN, 64 kbps
15. Video conferencing, test network
16. Local broadband distribution network
17. Narrow band and broadband ISDN
18. Broadband distribution network
19. Universal network
20. Source: BDI "Industrial Research, Key Technologies," 1986, p 93

12552
CSO:   5500/2526

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BUNDESPOST MONOPOLY DISCUSSED AT BDI CONFERENCE

Frankfurt FRANKFURTER ALLGEMEINE in German 1 Jun  87 p 15

[Article:  "FDP Wants to Break Up Bundespost Monopoly.  Hirche:  Struggle Against Old-School Socialists, Mercantilists and Supplier Oligarchy.  BDI Conference"]

[Text]  Cologne, 1 Jun (KB)--As a stronger coalition partner both at the federal and Land level, the FDP is urging that the telecommunications monopoly held by the Bundespost be broken up.  The economics minister of Lower Saxony, Walter Hirche, believes that the political environment for making this happen has substantially improved since the three most recent state legislature elections.  At a conference of the BDI (Federation of German Industries) on reorganization of the telecommunications system on Monday in Cologne, Hirche said that he, along with his party and now also along with more of his compatriots in the government, was struggling against a coalition of old-school socialists and neomercantilists who want to solidify the postal monopoly.  The Laender, however, he went on, had no firm opinion.  If telecommunications in Germany is to be future-oriented, the monopolistic structure and the supplier oligarchy ought not to be retained.  It would have to be opened up to competition and increased performance through liberalization and deregulation.

The lines have been drawn, however, in the battle over the reorganization of the telecommunications system.  This was confirmed at the BDI conference. Siemens, as a leading producer of telecommunications technology, is for maintaining the status quo; state secretary Winfried Florian defends its monopoly.  The chairman of the board of Siemens AG, Karlheinz Kaske, said competition across the board did not really benefit all of the groups involved in telecommunications.  The Bundespost should remain solely responsible for maintaining the public communications networks and providing standardized services which are needed for basic requirements.  Based on this infrastructure, a number of services and service providers could develop freely.  However, the Bundespost ought to remain involved in the market for terminal equipment, particularly with regard to the introduction of new services and networks.  Deregulation should not cause company monopolies to replace a supposedly outdated Bundespost monopoly, said Kaske.

BDI president Tyll Necker spoke out clearly in favor of more competition, saying that it benefited all and was also possible due to technical developments. The FRG needed more courage in implementing solutions for a market economy--a fundamental decision had to be made as to whether the status of the market was to be oriented more toward competition or whether the bureaucratic, centralized structure was to be maintained. Modifying his view somewhat, however, Necker, a member of the government "telecommunications" commission, said that it was increasingly difficult to make this decision rationally based on a quantifiable cost-benefit analysis.

Hirche wants to open up all communications services to competition along with the participation of a state-owned company for "telecommunications." There was also no justification, he said, for the Bundespost to have a monopoly on subscriber telephones. Its monopoly on the network, however, would have to be maintained because otherwise there would be no assurance of horizontal expansion of the telecommunications infrastructure. Professor Carl Christian von Weizsaecker, in a comparison of new more liberalized structures in Great Britain, Japan and the United States, pointed out that the price of telecommunicating fell dramatically due to greater competition. In Great Britain and America, admittedly, private users had to pay higher local fees which were, however, still within reason.

12552
CSO: 5500/2526

FRG PTT PLANS EXTENSIVE FIBER OPTIC NETWORK

Duesseldorf VDI NACHRICHTEN in German No 22, 29 May 87 p 17

[Article by Rudolf Schneider:  "Fiber Optics Outdo Copper  Cables;"  first paragraph is VDI NACHRICHTEN introduction]

[Excerpts]  VDI NACHRICHTEN, Offenburg 29 May 87--ANT Nachrichtentechnik Ltd, which is headquartered in Backnang,  opened a new production site for  optical fiber cables in Offenburg.  The plant was built in a record time of 6   months and  became operational last December after Bundespost approval of the cables. The  new  plant's  production capacity for   10-fiber  cables  exceeds  30,000 kilometers a year.

ANT  has  been  involved in preparatory work for optical transmission  for  20 years.

Despite higher costs of the optical terminal and of the necessary intermediate amplifiers as compared to coaxial cables,  a higher level of profitability has been  reached.   This  is  due  mainly to  the  development  of  optoelectronic transformers  in  the 1300-nm range and to the minimization of  optical  fiber attenuation in systems with a transmission rate of 140 Mbit/s.   The intervals between the amplifiers have been extended to 36 km, while in coaxial cables an amplifier  is  needed every 4.5 km.   This advantage becomes even  clearer  in systems  with  a transmission rate of 565 Mbit/s where the  intervals  between optical fibers can remain at 36 km, while in coaxial cables they shrink to 1.5 km.

This  explains why optical fiber technology has long been utilized in all  PTT networks, with the exception of those for subscribers' stations.

Beginning in 1987, the entire long distance communication network will rely on optical  fibers.   Since 1986,  however,  the FRG's PTT has  been  introducing optical fibers in local exchange networks,  and for 1987 plans to turn to one-mode cables with a transmission rate of 140 Mbit/s.

From 1987 to 1991, a total of 900,000 km of optical fiber cables are scheduled to  be  laid,  a  figure which--according to a  survey  of  Kessler  Marketing Intelligence--brings the FRG's cable industry to the forefront of the European market.  Still,  according to  the same source,  the West European market  is

developing much faster than the world market. The FRG's PTT therefore ranks first on the global scene.

In the United States, optical fibers have not yet been introduced in long distance communication networks due to the absence of a postal monopoly and the consequent difficulties in organizing a pool of the various private companies.

In Japan, a 2,000-km optical fiber line stretches from north to south, but that seems to be all for the moment. Additional plans are not foreseen for the time being. Only after the year 2000, with Japan's Information Network System (INS), can a switched broad-band network be expected.

Other European countries have only a few field experiments and pilot projects running—or even on schedule. The FRG owes this lead to its industry, which has been developing equipment for the various generations of optical fibers. This applies especially to ANT, the first company to manufacture broadband switches and audio-video codecs for the teleconference trial network.

However, an optical fiber cable alone is not enough to build such a system. It also requires conduit couplers, connectors, cross-connection points, terminal devices, and splicing and measuring instruments needed for laying and servicing the cable. While the change to the one-mode system had no complicating effects on the production of cables, it had some on their splicing: the conductors' five times smaller field diameter requires high precision splicing. Splicing attenuations below 0.1 dB call for an adjustment of the fiber core. This is carried out according to the bending-coupler principle, by which a specific bending is performed on one of the two fibers and light is projected on this spot.

Part of the light reaches the fiber's core section, while the light left in the fiber's sheath at the end of the bending is cast outwards. In the core section the light proceeds to the splicing spot and is then projected onto the roughly preadjusted face of the second fiber. However the light reaches the core of the fiber only where the core sections of the two fibers overlap. The remaining light passes through the sheath and is once again emitted. Therefore only the light passing through the core reaches a specific bending of the second fiber. Part of this light is then emitted and absorbed by a diode.

At this point the adjustment of the core through maximization of the absorbed light-intensity can occur. This optimization method allows automatic adjustment, splicing and final control. ANT developed such a one-mode splicing instrument.

Also noteworthy is an instrument for measuring reverse current manufactured by ANT which can be equipped either for one-mode or for multi-mode functioning by simply changing a plate. The instrument works on the basis of the measurement process for reverse current, established as the universal measurement method for the production, laying, and running of cables as well as for troubleshooting.

At present the manufacture of passive components for one-mode systems is still very expensive. The manufacture of economical components suitable for wide scale use in the subscribers' sector will only be possible, according to ANT, when adequate integrated optics production technology is available.

However, some headway has been made in the field of mobile optical waveguide systems--notably a field cable system, appliance plugs, connecting lines, optical switches and vehicle couplings. The FRG Federal Railways Intercity Experimental (ICE), for example, employs two 4-lens optical fiber couplings manufactured by ANT.

In the Intercity Experimental, the driving and brake systems will be controlled by microprocessors. Since signals of a few volts cannot be transmitted free from interference alongside cables conducting kA current, an optical fiber bus-system has been developed. This system transmits signals from the ICE locomotive to the central cars and conversely, signals the condition of equipment such as doors and lighting back to the locomotive.

ANT representatives believe, without revealing their time frame, that in the future beam-waveguides will connect every household. There will be a communication outlet in every living room for multifunctional terminals to receive and transmit sets of bytes conveying data, speech, texts, and images.

8703
CSO: 5500/M317

CNES PLANNING LOCSTAR NAVIGATION SATELLITE

Paris LE MONDE DES TELECOMS in French Apr 87 pp 30-32

[Article: "LOCSTAR: Low-Cost Radio Position Finding by Satellite"; first paragraph is LE MONDE DES TELECOMS introduction]

[Excerpts]  The CNES [National Center for Space Studies] plans to install a new satellite radio position finding [RPF] system [Locstar] covering Europe, Africa and the Middle East.  Locstar makes it possible to determine the location of its many users (several million in Europe) to within 10 to 100 meters, while providing an additional capacity to transmit short messages which are part of the "location" function.  This system will initially be available in Europe, operated by a group of European partners.  Later, it could be extended to Africa and the Middle East to comprise—together with other compatible regional systems such as the U.S. Geostar—a system with almost global coverage.

Numerous land-based systems have been developed in the past to satisfy a broad range of requirements.  In all, there are currently more than a dozen air or sea radio navigation systems (Omega, Loran-C, VOR-DME, Syledis, Decca, etc.) in operation.  In addition, the constant development of civilian radiolocation requirements (Footnote)  (According to the International Telecommunications Union definition, radio position finding services include radio navigation (the mobile unit determines its position for its own navigational needs) and radio location (a control, monitoring, or management center for a group of mobile units determines their position)) is giving rise to significant system development (civil aviation's S-mode radar) and to a search for new technological designs (future maritime traffic monitoring system).  Lastly, no current system is truly adapted to land requirements. These are substantial, although different in nature:  Europe has several million "professional" road vehicles, versus 20,000 ships over 100 tons and 4,500 commercial aircraft.

In general, if land-based operations are excluded, the existing range of equipment meets the current requirements of the developed world.  This is probably no longer true for the future, and this situation does not consti- ture a model of economic resource management (operating costs) or physical resource management (radio frequency spectrum) which can be applied worldwide.

In comparison with land-based systems, existing space-based systems offer substantial advantages in position finding. In particular, they provide uniform service over vast areas. Still, they also have significant limitations, linked either to the use of low altitude (approximately 100 km) polar satellites which do not offer continuous coverage, or to the use of technology which limits the number of system users or the accuracy of navigation.

Such is the case of the American Transit Doppler navigation system, as well as Argos and Sarsat-Cospas positioning systems, developed by the CNES with international cooperation, for the collection of environmental data and the location of aircraft and vessels in distress.

Navstar-GPS, one of the systems most comparable to Locstar, no longer has such shortcomings. However, it is not adequate to satisfy all requirements, especially as regards low-cost radiolocation of land vehicles, light aircraft, and pleasure craft. The GPS system is a navigation system (position determined by the mobile unit) developed in the United States for military purposes and made available to the civilian sector in a reduced accuracy configuration. Eventually, it will offer global coverage and its use could be free of charge.

Nevertheless, GPS has certain weaknesses compared to Locstar. It cannot report to a base on the position of mobile units, i.e., it has no radiolocation capability. Nor can it be used to transmit messages between the base and a mobile unit. Lastly, GPS terminal costs are expected to remain higher because they are used to compute positions.

Worldwide Radiolocation Network

With currently available technology, a radiolocation system using a few geostationary satellites can be put into operation, first in the United States and Europe and later extended over the whole world. That is the goal of the European Locstar and U.S. Geostar systems. Both should have sufficient capacity to meet the future radiolocation requirements of air, sea, and land.

Furthermore these systems are designed to provide a message service associated with the radiolocation functions at no additional cost, thus meeting most radio navigation requirements (the position computed at the processing center is sent back to the mobile unit).

In the future, the combination of "radiolocation and messaging" will make possible development of management services for mobile unit fleets (trucks, ships), traffic management and monitoring, which are difficult to provide with land-based systems. This development is already under way with the current radiolocation systems, such as civilian air radars and the forthcoming maritime monitoring services which combine positioning and data transmission. Full development of these services and their use of land-based applications is limited only by the characteristics of the available technological base.

At Least 500,000 Users in Europe

According to the CNES, market studies appear to confirm that there is a demand with an initial potential market of at least 500,000 users in Europe. The centralized configuration of the Locstar system makes it suitable for commercial exploitation, which would make it possible to both produce a return on investments and fund the development of a future space capability, even with very moderate rates. This latter aspect explains the interest aroused by the system in countries where the infrastructure for mobile unit navigation, position finding, and communications is poorly developed.

The Locstar system is based on three technological components: the space segment, user terminals, and the central control/processing system. The space segment includes receiver and transmitter payloads on board geostationary satellites. A transmitter payload continuously transmits to mobile units the "time base" required to synchronize both replies and all messages sent to the mobile units. Two receivers payloads relay mobile unit transmissions to the processing center. Taking into account the redundancy required for an operational system, three satellites are adequate to provide services for Europe.

The user segment includes the mobile terminals. These can number up to 500,000 per beam, or 4 million for all of Europe by the year 2000--or even more if the market warrants it.

Lastly, the central control and processing system includes the interconnecting ground stations, the satellite control center, the computation and message processing center and the interfaces with data communication networks.

An Unambiguous Position

The position of the mobile units is determined by measuring the traveling time of the signals (thus the distances) between the mobile units and the two relay satellites used in reception mode. Two positions are thus obtained: one in the Northern Hemisphere and one in the Southern Hemisphere. The ambiguity is easily resolved for the latitudes of more than a few degrees. The system can therefore not be used for position finding in a band of a few degrees above and below the equator or, of course, in polar regions which geostationary satellites do not cover.

Two measurements, thus two relay satellites, suffice to determine the position of the mobile unit if its altitude is known. For land vehicles, altitude is entered from digital altitude cards. For aircraft, the altitude must be transmitted in the mobile unit's transmission; it can come from either a barometric or radio altimeter. For altitude errors of less than 5 meters, position accuracy is between 10 and 100 meters. The standard error in measuring the satellite-mobile unit distance is some 2 meters. This is obtained through use of 8-Mbps pseudo-random codes which--together with a mobile unit transmission to an Aloha-type base--provide very high capacity

multiple access.  The use of orthogonal pseudo-random codes also makes it possible to foresee the coexistence of several similar and independent systems in the same frequency bands.

Measurement errors due to ionospheric propagation are eliminated by the use of a fixed land-based network of reference terminals in precisely identified locations.  This technique also makes it possible to adjust the position of satellites on an almost real-time basis.  The processing center is designed to provide real-time management of links with the mobile units and user centers, on the one hand, and position fixing computations, on the other. It can be gradually expanded as requirements increase and will be adaptable to specific user requests.  Some users will be able to benefit from the rapid automatic links with the Locstar processing center to process data for their own specific requirements.

For a "navigation" application (onboard positioning by a mobile unit), the entire transaction will take less than 0.6 second.  But owing to its centralized design which provides for controlled flow of transactions, the system will be able to handle several levels of priority.  The length of messages exchanged with the mobile unit is limited to some 100 effective characters, or approximately 800 to 1,000 bits per message.

In accordance with the terms of the agreement between the CNES and the U.S. Geostar Corporation, the Locstar system, intended to provide satellite radiolocation service in region 1, will be compatible with the Geostar system under development in the United States, subject to allocation of the same frequency bands for mobile unit-satellite links.

The Locstar system will therefore be very similar to the Geostar system in design.  In addition, it will be developed by a private company and operated on a strictly commercial basis.  This means that early capital expenditure will be minimized by restricting the size of the space segment and the ground equipment to the level dictated by the market.  This means defining a first generation system for the period 1989-1994, during which the space segment will consist in payloads integrated in host satellites.

Three Satellites for Locstar 1

The expected lifespan of Locstar 1's space component is 5 to 10 years, depending on the technological solutions selected and the satellites used. The operating company will therefore have to make decisions affecting the continuation of the service beyond the first generation.  Depending upon the development of the market, further operation of the system may require piggyback payloads on host satellites, as for the first generation of the system, or dedicated Locstar satellites, carrying transmitter/receiver payloads, with the receiver payload remaining a passenger on a host satellite.

The first generation system, Locstar, consists of three satellites:  Two satellites carry transmitter-receiver payloads, the third carries only a

receiver payload. The redundancy achieved is thus two transmitter loads for one required and three receiver loads for two required. The stated performance specifications can be met by satellites separated by at least 30 degrees of longitude and orbital positions between 30 degrees east and 30 degrees west. Desired coverage includes mainly Western Europe, the western Mediterranean, the English Channel and the North Sea. This coverage is provided by a single beam with a capacity of approximately 500,00 transactions (messages and/or location fixes) per hour at peak times. The stated capacity is limited primarily by power constraints on board the host satellites and by the choice of a single-beam system. Studies on deploying transmitter-receiver and receiver-only payloads are in progress for the European satellites which could house such equipment and are scheduled for launch in the 1988-1990 period. Similarly, CNES has begun payload design studies in collaboration with European industry. In all, some 10 satellites are today considered as possible candidates for Locstar 1; no selection has yet been made, however.

Specialized Platforms As Of 1995

The second generation system, Locstar 2, will also comprise of at least three satellites. However, to meet expected demand, the use of specialized platforms for the transmitter-receiver satellites is planned starting in 1995. These satellites will provide increased capacity to the European area through the use of multibeam coverage. The CNES considers that, depending on demand, this coverage can be extended to the Middle East and Africa. If the market develops less than expected, Locstar 2 can be scaled down to the same configuration as Locstar 1, thereby limiting the amount of investment, but also Locstar 2's capacity.

For users of Locstar 1, the launch of Locstar 2 will entail no break in service, and it will be possible to use the same mobile terminals. The operational simplicity of the Locstar terminals is in fact remarkable. Because all processing is performed in the processing center, any new services will be available to all users as soon as adequate terminal peripherals are available (display, imaging, storage of transmitted data, input system, etc.). Similarly, the transition from one beam zone to the next will be handled automatically by the ground processing system. In the case of multibeam coverage, the processing system can be broadly distributed over the entire coverage zone. Such an arrangement of course increases the cost of the ground segment; it provides, however, a more rapid dissemination of data and improved overall availability.

[Box, p 30, System Performance]

The major technical characteristics of the Locstar system are as follows: accuracy of mobile unit location finding to within approximately 10-100 meters; message length per transaction of 800-1,000 bits or about 100 characters; transaction time between mobile unit and control center (not including access time between control center and base) of less than 1 second;

system capacity of 500,000 to 700,000 transactions per hour (or one transaction per hour per standard user).  These figures represent the system's capacity per beam per satellite.  The first generation will have a single beam covering Europe, the second will have several beams.  Coverage will be limited to Europe for the first generation.  Later, it may be extended to Africa and the Middle East.

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SELENIO-SPAZIO PRODUCES TELEPHONE PACKET SWITCHING NETWORK

Rome IL MESSAGGERO in Italian 5 Jun 87 p 26

[Article by Alfio Finocchiaro: "New System by Selenia: Satellite Issues Orders to Telephone Traffic"]

[Text] "It doesn't exceed the dimensions of a box 30 centimeters high and 20 wide, but the electronic circuits it contains required a year of intense work," says engineer Antonio Rodota, General Codirector of Selenia Spazio, when referring to the new telephone switching system that come out of the company's laboratories in Rome a mere month ago. "Thanks to this," he adds, "it will be possible to improve telephone transmissions via satellite. The switching system is the brain of the Italsat satellite which will be put into orbit by 1990. It is the heart of an exceptional telephone exchange operating in space."

Let us take a look at a practical example of how Selenia's new product can be used. In the summer any vacation locations in Italy experience' overloads in the telephone lines because of the large number of tourists. It would be costly and unprofitable to set up adequate telephone exchanges in so many areas where the population for most of the year is much smaller. With the system designed by Selenia Spazio it will be possible to improve service: telephone signals from ground stations will be sent to the satellite which, by means of its "intelligent" switching system, will activate or deactivate the lines as needed. In this way, what usually takes place in ground exchanges will occur in space, but with added functions.

The system, Rodota emphasizes, is attractive to several possible foreign buyers, who are keeping a close watch on the testing that it is currently under way. The switching system and the other parts of the Italsat satellite are presently being subjected to numerous tests in Selenia's "anechoic chamber," the largest in Europe; the chamber is a space free from echos--with walls that totally absorb sound--where it is possible to adjust very sensitive equipment under optimum conditions.

"In the Italsat project," Rodota adds, "we are the most committed industry insofar as we fulfill the role of prime contractor for the purchaser which is the National Research Council. It is a 400 billion lire contract with 350 billion for development of the satellite and 50 billion for the ground stations."

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CSO:  5500/2528

GOVERNMENT, ERICSSON TO COOPERATE IN OFFICE SYSTEMS

Stockholm DAGENS NYHETER in Swedish 11 Jun 87 p 11

[Article by Lars Ramklint: "Agreement Reached Between Telecommunications Agency And Ericsson:  United Front Against Competitors"]

[Text]  When the Riksdag, perhaps by the end of the year, unleashes competition into office switches, the Telecommunications Agency will get to share a market worth 1,500 million [kronor] per year with international competitors such as Siemens, IBM and Nippon Electric.  But there will be cooperation with the domestic competition L. M. Ericsson since an agreement was drawn up on Wednesday.

The other day a working group at the Communications Ministry suggested that the Telecommunications Agency's monopoly on office switches, also called fast modems, which connect data equipment to the telecommunications network, should cease.  A proposal to the Riksdag is expected by year's end.

"Here at the agency, we agree that technical developments have made this liberalization crucial.  Our trade organizations agree with us in this assessment," said general director Tony Hagstrom.

Big Market

Tony Hagstrom declined to guess how large a share of the market the agency would relinquish.  In the agency's long-term plan, the executive office has confirmed the need to invest, but this also depends on whether the agency can make its switches for a lower cost than was earlier believed feasible.

Overall these changes will mean that total investment up to 1990 will be 1.8 billion less than the 26.6 billion previously calculated and that the amount for salaries will go down one billion.

In every country in which the monopoly on office switches has been lifted, there has been a price war which benefited companies, but one day later prices stabilized at their earlier level.

"We expect the same thing here," said Stig Johansson, the agency's marketing director.

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## Big Switches

He stated, not without satisfaction, that the Telecommunications Agency had by and large made a clean sweep of the most attractive market, for office switches, before competition was unleashed. Already 85 percent of all big switches are replaceable with modern digital ones.

Sixty percent of medium-sized switches have been converted. So competition will primarily affect smaller switches, 60 percent of which utilize older technology.

There has been uncertainty as to how competition between the Telecommunications Agency and Ericsson should develop when the monopoly on office switches is abolished.

The modern AXE switches were developed jointly by the agency and Ericsson at Ellemtel and the division of labor was such that Ericsson sold them abroad and the agency in Sweden. The agency manufactured most of the switches at Teli and purchased some from Ericsson.

The agreement which has now been signed will regulate future cooperation. In part joint development work will continue at Ellemtel and will affect both telephone stations and office switches. In part production work between Ericsson and Teli can be studied so that the same products are not manufactured simultaneously at two Swedish plants. Finally, in part, consensus has been reached to work together so the Telecommunications Agency will be the exclusive vendor of AXE technology in Sweden.

## Its Own Advertising

That means that Ericsson will advertise its own switches, but when they have a customer, sales will take place through the Telecommunications Agency.

"For Ericsson, the most important thing is selling work stations with data terminals to its customers. There we won't compete with them," said Stig Johansson. "Then when they have to be hooked up with the network, we'll bring in our solutions."

For the Telecommunications Agency, the lifting of the monopoly will mean a certain reduction of sales and installation staff, but this will be managed through reassignment and natural attrition.

There is also in the revised three-year plan submitted by the agency to the government a proposal to allow so-called third party traffic on rented lines, though the agency has already raised line rental charges.

The changes in the expansion of digital switches mean that the old analog switches need not be converted, instead they can be supplemented by the new capacity in digital technology. One-fourth of the investment costs for a certain number of new connections is thereby saved.

Lastly, the Nordic telecommunications agencies have come together in Scantel, Inc., a recently-founded company, so as to offer custom-made communications solutions to the Nordic business community.

TELECOMMUNICATIONS AGENCY TO END MONOPOLY ON SWITCHING GEAR

Stockholm SVENSKA DAGBLADET in Swedish 11 Jun 87 p III

[Article by Hakan Forsberg: "Telecommunications Agency Wants To Abolish Its Switch Monopoly"; first paragraph is introduction]

[Text]  The Telecommunications Agency wants to abolish its monopoly on office switches and modems (for data transmission).  It is also considering permitting competitors to hook up to the agency's lines and sell their own communications services, so-called third party traffic.

"By 1989 the Swedish telecommunications market will be one of the most open in the world," said Tony Hagstrom, the agency's general director.

On Wednesday he submitted the agency's revised three-year plan for 1988-90 to the government.  The original plan--which the government received last fall-- has since become dated owing to rapid developments in the field of telecommunications.

In its new plan, the Telecommunications Agency estimates that the Swedish office switch market will gradually open up to foreign competition.  Annual investment in this market is 1.5 billion kronor and one billion kronor worth of service is provided.

"In the future we also hope to be the leading supplier of office switches in Sweden," said Stig Johansson, the agency's marketing director.  "But we have to trim our organization, which will lead to a certain reduction in the number of employees."

The agency expects to do this via "a very active personnel policy of reassignments and natural attrition."

But if the monopoly is to be lifted, the Riksdag must take action.  In a recent report, the Communications Ministry adopted the same line as the Telecommunications Agency.  And by the end of the year the government is expected to make a proposal to the Riksdag.

"With the broad support the motion has, we expect it will make it through the Riksdag," Tony Hagstrom said.

On Wednesday the Telecommunications Agency and Ericsson signed an agreement to continue--and expand--their 10-year-long cooperation in manufacturing and marketing office switches. According to Stig Johansson, this will improve opportunities for competing in foreign markets.

As regards so-called third party traffic, the competition both internationally and in Sweden will become much more perceptible to the Telecommunications Agency.

"Developments have made the International Telecommunications Union's recommendations about not allowing third party traffic obsolete," said Tony Hagstrom. "By 1988/89 we expect to accept it completely when the charge for rental lines can be adjusted for actual costs."

12789
CSO: 5500/2539

BRIEFS

MOBILE PHONES FROM NOKIA--The Telecommunications Agency will purchase base stations for mobile telephones from the Nokia firm Mobira.  The order is worth 20 million kronor.  Nokia-Mobira has also received orders from the tele-communications agencies of Norway, Finland, Switzerland and Holland.  Alto-gether the orders are worth 210 million kronor, which corresponds to a six-month production.  Mobira's sales in 1986 were 950 million kronor.  The base stations will be manufactured in Oulu, Finland.  Mobira's biggest competitor for the order was the Swedish firm of Ericsson.  But the order will not open up any new doors, said Mobira's Sven Berggren.  The Telecommunications Agency cooperates closely with both Ericsson and Mobira.  [Text]  [Stockholm SVENSKA DAGBLADET in Swedish 3 Jun 87 p 23]  12789

CSO: 5500/2539

BRIEFS

TV SATELLITE SYSTEM--The system that will relay television transmission via
satellite from Ankara to the Turkish Radio and Television relay station on
Davudi Mountain has been assembled.  The Davudi relay station in Adana is the
second relay station receiving transmissions via satellite.  The system will
enable the transmissions sent from the ground station in Golbasi, Ankara, to a
satellite 36,000 km away from earth to be transmitted to the people without
any loss.  [Summary]  [Ankara Domestic Service in Turkish 1000 GMT 25 Jun 87
TA]  /9599

TELEVISION TRANSMITTER--The 450-kilowatt Sirnak-cizre television transmitter
has been commissioned.  It will enable citizens in certain parts of Mardin,
Siirt, and Hakkari to receive second channel television broadcasts.  Speak-
ing at the ceremony, Turkish Radio and Television Director Tunca Toskay said
that so far 36 main television transmitters have been inaugurated according to
plan.  Toskay said that the most important characteristic of the transmitter
is that it is furnished with ground equipment that will enable it to receive
satellite transmissions.  The station was built on the 1,830-meter high
Kupeli Mountain in Sirnak.  Because the area is flat, Syrians and Iraqis who
live 100 to 150 km from the border will also be able to receive Turkish Radio
and Television broadcasts.  [Excerpts]  [Ankara Domestic Service in Turkish
1600 GMT 21 Jul 87 TA]  /9274

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